The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 742.---Vol. XIX.] LONDON, SATURDAY, NOVEMBER 10, 1849. [Price 6d.

MR. GEO. TURTON, STROUD, will SELL, BY AUCTION, at the Castle Hotel, SWANSEA, on Thursday, the 15th day of November, 1849, at Three o'clock in the afternoon, the

CEFNEITHRIM COLLIERY,

situate near CLYDACH. The coal is excellent free-burning coal, and fit for steam purposes; it is worked by level, and a good tramroad runs from the colliery to the Swansea Canal, over which it has to pass less than 5 miles. The colliery is in excellent working condition, and the purchaser can have the PLANT belonging to the same at a valuation, if he desire.

The colliery is held under a lease for 21 years, renewable during the life of the lessor, at a low sleeping rent and royalty.

Also, the POTTERY WHARF, situate in SWANSEA, held under a lease for 99 years, if three lives (one of which only is surviving) should so long live, free from rent. The surviving life in the lease is insured in the sum of £300, the annual premium on which is £10 11s., and the policy will be included in this lot.

For further particulars apply to RICHARD JENKINS, Solicitor, Swansea.

IMPORTANT SALE.

GALVANIZED IRON COMPANY'S WORKS, STAFFORDSHIRE.

KINGSWINFORD, CORBYN'S HALL AND TILED HOUSE ESTATES, DARLASTON GREEN MINERAL ESTATE, AND PHŒNIX IRON-WORKS, WEST BROMWICH.

MESSRS. OATES & PERRENS have been honoured by the directors of the above company with instructions to SELL, BY PUBLIC AUCTION, at Dee's Royal Hotel, BIRMINGHAM, on Thursday, the 29th day of November inst., at Twelve for One o'clock precisely, either together or in the following, or such other, lots as may be agreed upon at the time of sale, and subject to such conditions as will be then produced, the WHOLE of their newly-opened and improved WORKS and MINES in SOUTH STAFFORDSHIRE—viz.:

LOT I.—PHŒNIX IRON-WORKS.

All that most desirable and eligibly situated FREEHOLD IRON-WORKS and PREMISES, the PHŒNIX IRON-WORKS, WEST BROMWICH, in the county of STAFFORD. The MILLS and FORGES of which comprise the following PLANT AND MACHINERY—viz.:

AN ENGINE, 100-horse power, by Boulton and Watt, in brick engine-house, with 2 35-feet boilers, complete, and recently erected, driving a forge; a 20-inch boiler plate tram, and rail mill, to which are attached 2 punching and straightening machines, driven by an engine of 100-horse power.

An ENGINE, of 60-horse power, by J. and G. Davis, in brick engine-house, with 3 25-feet boilers, driving a forge; an 18-inch boiler-plate and sheet mill; and a 16-inch tram for the manufacture of bars, T, and angle iron. With this work is an engine, 26-horse power, driving an 8-inch merchant tram, saw and turning lathe—the whole employing 34 puddling and heating furnaces, and being capable of manufacturing from 350 to 400 tons of finished iron per week.

There is also belonging to this work blacksmiths' and wheelwrights' shops, stock-takers, and general offices, &c., together with an ample wharfage of seven boats' length to the Birmingham Canal, and an excellent frontage to the turnpike-road leading from Swan Village, West Bromwich, to Oldbury.

The premises, which are most eligibly situated, occupy about two acres of land, the valuable mines under which (belonging to the property) remain ungotten. With this lot will also BE SOLD the following PROPERTY (held on lease for 21 years, of which 18 are unexpired), consisting of an excellent DWELLING-HOUSE, with OUTBUILDINGS and APPURTENANCES, and about FOUR ACRES of PASTURE LAND, now in the occupation of Mr. Spencer, manager to the said works; a capital WHARF and STORE-YARD adjoining the works; FOUR WORKMEN'S COTTAGES, with GARDENS and APPURTENANCES thereto belonging, now in the occupation of William Williams, John Harley, Richard Horton, and Sarah Summers, together with a capital 8-quarter MALT-HOUSE, adjoining to the said canal, in the occupation of William Downing.

LOT II.—DARLASTON GREEN MINES,

Consisting of about TWENTY-SIX ACRES of these excellent and well-known MINES of COAL and IRONSTONE, situate at DARLASTON GREEN, in the parish of Darlaston, and county of Stafford, which have been recently opened by the Galvanized Iron Company, and which are now in complete working order, having been well and completely drained. The PLANT comprises THREE WINDING ENGINES, of 24-horse, 26-horse, and 14-horse power, with SIX PIT SHAFTS, WINDING and PUMPING APPARATUS, the whole of which is in the most efficient state.

The greater portion of the mines remain ungotten, and are held under lease for a term of years, of which 35 are unexpired. The Birmingham Canal runs into the property, for the produce of which there is an abundant demand in the surrounding district.

LOT III.—KINGSWINFORD, CORBYN'S HALL, AND TILED HOUSE ESTATES,

Comprising the valuable MINES of THICK, or TEN-YARD COAL, BROOCH COAL IRONSTONE, and other MINES and MINERALS now remaining to be gotten under upwards of 203 acres of land, situate in the parish of Kingswinford and county of Stafford; the whole PLANT and MATERIALS of which are now in complete working order, and comprise a sufficient number of SHAFTS, sunk to the various measures, and worked by nine powerful engines; FOUR BLAST FURNACES, in an efficient state, capable of making from 500 to 600 tons per week, with superior blowing engines, of 65-horse and 50-horse power, in brick engine-houses, hot-blast apparatus, complete, 4 casting-houses, fitted with cranes, &c.; 2 foundries, with air-furnace and cupolas, drying stoves, cranes, &c.; lift to furnaces, with railway and inclined plane from Canal Basin, worked by high-pressure engine, 20-horse power; blacksmiths' shopping, 4 hearths, carpenters' and patternmakers' shops, fitting-up shop, with lathes, driven by 4-horse power engine, and large store rooms.

The newly erected and excellently arranged MILL and FORGE comprises the following PLANT and MACHINERY—viz.:

ENGINE, 65-horse power, by J. and G. Davies, with hammer-squeezer, shears, and mine-crushing rolls, tram of 3 pairs of forge rails, sheet and plate rolls, corrugated iron rolls, heating and annealing furnaces, and 19 puddling furnaces—the whole in complete working order. Attached to this work is the GALVANIZING HOUSE, 105 feet by 45 feet, with pickling tanks, metal bath, 2 drying stoves, steam generator, warehouse, with clerks' office and machine house.

The surface land is in the occupation of Benjamin Gibbons, Esq., and others; there are also on the estate 2 desirable residences, Corbyn's Hall, with outbuildings, gardens, &c., in the occupation of Benjamin Gibbons, Esq., jun., and the Tiled House, with ample clerks' offices, stables and garden, suitable for managers' residence, now in the occupation of C. Woodcock, Esq., together with stabling and outhouses, sufficient for the horses employed on the property.

The estate is admirably situated, the Stourbridge Extension Canal and Standhill's Branch passing through the property, and having basins running into the centre of the works. The Kingswinford Branch of the Oxford, Worcester, and Wolverhampton Railway passes through the estate, which is surrounded by excellent turnpike-roads, and is intersected in all parts by tramroads belonging to the property, affording the greatest facility for conveyance, land sale, of coal, &c.

The property will be sold subject to the terms and conditions of the lease under which the same is held. The Tiled House property is held for a term of 21 years, of which 14 are unexpired, with a power of renewal for a further term of 21 years. The Corbyn's Hall property is held for a term of 56 years, from the 1st day of August, 1845, of which 52 years are unexpired.

The auctioneers earnestly beg to call the attention of the iron trade and capitalists generally to this valuable and most eligible property, which, from its situation and the superiority of its mines and erections, ranks among the first iron-works of South Staffordshire: they have also received instructions to state, that every reasonable advantage will be given to purchasers in the mode of payment, for which an extended period of time will be allowed, on proper security being given.

To view the property, and for further information, apply to Mr. Spencer, manager, Phœnix Iron-Works, West Bromwich; William Manders, mine bailiff, Darlaston Green Colliery; Mr. Woodcock, Tiled House, Kingswinford; Mr. Job Taylor, mine agent, Bromley, Kingswinford; Messrs. Westmacott and Finniger, solicitors, 28, John-street, Bedford-row; Mr. Samuel Fry, solicitor, Walbrook, London; of the auctioneers, Stourbridge; or at the offices of the Galvanized Iron Company, No. 3, Mansion House-place, London.—Particulars of the property, with lithographed plans, will be distributed one fortnight prior to the sale, and may be had at the principal inns of the neighbourhood; *Herald* Office, Birmingham; *Mercury* Office, Liverpool; or at the above-named places of reference.

NORTH WALES.—VALUABLE SLATE QUARRIES FOR SALE.—TO BE SOLD, BY PRIVATE CONTRACT, those VALUABLE QUARRIES, called the CAMBRIAN SLATE QUARRIES, situate in the neighbourhood of FESTINIOG, in the county of Merioneth. They have for some time been in full operation, and producing a material of first-rate quality, at a comparatively trifling cost, being in the side of a mountain, water free, and not having more than from 10 to 12 feet "baring."—The above property is well worth the attention of capitalists, both from its position and capability of producing, at a slight additional outlay, an almost unlimited quantity of slates.—For particulars apply to

Mr. MICHAEL FORSTER, Mining Engineer, Conway, North Wales.

N.B.—These quarries are sufficiently opened out to develope both the quality of the slates and the capability of the extension of the works.

Conway, November 1, 1849.

COAL MINES IN PEMBROKESHIRE.—TO BE LET, for a term of years, all the valuable VEINS of COAL lying under the FARM of CRESWELL, of about 350 acres, and comprising the best VEINS of ANTHRACITE COAL in the county. The above colliery has only been partially worked in the shallow veins many years back, before steam-power had come into general use, and is so situated that it can be opened at a small outlay, being on a branch of the Milford Haven, with quays, coal-yards, &c., already constructed, and a pit sunk within half a mile of the shipping place will command the whole of the property.—"A railroad at a very easy incline may be made at a comparatively small expense."

In the previous insertions of this advertisement, "Railway" was erroneously placed after Milford Haven, no line of that name being in existence. The South Wales Railway will skirt the property when the line now in progress is completed.

For further particulars apply to Mr. James Wilson, mineral surveyor and agent, Underwood, near Haverfordwest.

TO CAPITALISTS.

EXTENSIVE IRON AND COAL WORKS in SOUTH WALES, containing about 2000 acres of minerals, TO BE SOLD, or LET, by PRIVATE CONTRACT.

The above are NOW IN OPERATION, and GOOD WORKING CONDITION, and comprise:—THREE BLAST FURNACES, FOUNDRY, &c., with powerful pumping and winding engines for working the coal and ironstone, the whole being in perfect order. The coal and ironstone are of most superior quality. The average make per furnace is equal to the quantity produced from any other two anthracite furnaces.

The IRON is extensively used in Staffordshire for boiler plates and steel, in Wales for tin plates, and in London and other extensive foundries for the strongest and most delicate castings.

The COAL is highly approved of for malting. A purchaser would be treated with on liberal and advantageous terms, and the purchase money might be paid by easy instalments.

Further information may be had on application to Messrs. Hughes, Kearsey, and Masterman, solicitors, 17, Bucklersbury, London.

IMPORTANT TO CAPITALISTS.

VALUABLE SLATE VEIN IN THE MARKET.—The Proprietor of a valuable SLATE VEIN, or BED, covering an area of 63 acres, one-fourth of a mile in width, and rising to an altitude of fully 900 feet (the property of which is freehold), is desirous of obtaining a PURCHASER for the SAME, who will be allowed advantageous terms, with an assured certainty of ample returns for the needful expenditure required for carrying on extensive operations; and which, from the nature of the slate formation—stratum rising over stratum—ample space (with a deep fall) for rubbish deposit, free drainage, dispensing with the usual adjunct machinery, will not necessarily reach a tenth-part of the average working outlay of the generality of slate quarries. The Slate Vein, to which attention is drawn in this advertisement, is situated on the margin of a navigable lake, in Carnarvonshire, North Wales, within six miles (four of which is the post-road) of an excellent shipping port.

Carnarvonshire is noted as the great emporium of the slate trade, which affords constant and lucrative employment to thousands, at the same time enriching the proprietors.

The surveys of three eminent engineers have been followed up by reports of a highly satisfactory character as to the quality and quantity of this eligible slate formation, and may be had, with a view of the plan and sections, on application to Griffith Davies, Esq., Guardian Insurance Office, London; or Mr. W. Dew, surveyor, Llangefin, Anglesea.

SPRING GARDENS ENGINE-WORKS, NEWCASTLE-UPON-TYNE.

(For the purpose of winding up a partnership.)

TO BE SOLD, BY PRIVATE CONTRACT, all that valuable FREEHOLD PROPERTY, known as SPRING GARDENS ENGINE WORKS, at present carried on under the firm of Messrs. Burnett Brothers.

The property consists of 4250 square yards of ground, with suitable buildings and machinery for carrying on the business of an engineer and millwright. The works contain Turning, Fitting, and Erecting Shops, Smiths' Shops, Brass Foundry, Storehouse, and Offices, with an excellent DWELLING-HOUSE.

The MACHINERY consists of large Lathes and Planing Machines; also small ditto, with Drilling and Screwing Machines, which are driven by a 12-horse beam-engine, with a boiler of 16-horse power.

The machinery and stock may be taken at a valuation; or, if required, will be sold separately.

The property has a frontage of 375 feet; the buildings and machinery are all new, having been built within the last 10 years, and are in excellent repair.

Further particulars may be obtained of Mr. Stable, solicitor, Arcade, Newcastle; or of Messrs. Laws and Glynn, solicitors, Grey-street, Newcastle; or of Mr. James Burnett, on the premises.

JOSEPH DEELEY, of the LONDON and NEWPORT IRON-WORKS, NEWPORT, MONMOUTHSHIRE, respectfully recommends to the notice of the public his PATENT FOUNDRY FURNACE, which has been effectually tested, and is now in constant use at the above works, where it may be inspected by all persons interested. This furnace operates without the aid of any motive-power to impel the air. An immense saving is the consequence, both in erecting and working. One-third of the coke usually required is more than sufficient; a loss of only 22 lbs. to the ton being sustained in smelting.

The IRON MELTED in this furnace also undergoes an extraordinary improvement in quality.

SCOTCH PIG and SCRAP are returned equal to the best cold-blast in point of strength, and capable of being chipped or filed with the greatest facility.

FOUNDRIES USING the FURNACE may exist in the most densely populated cities, without causing the least nuisance—all smoke, dust, and noise being entirely avoided.

The FOREIGN PATENT RIGHTS of the above are FOR DISPOSAL, affording capitalists the most favourable opportunity for profitable investment.

APPLY TO THE PATENTEE AS ABOVE.

CWMBRAIN PATENT IRON REFINERY.—The PROPRIETORS of IRON FORGES and MILLS are respectfully INVITED to MAKE TRIAL of Mr. BLEWITT'S REFINED IRON, or METAL, PREPARED by a

NEW PATENT PROCESS,

whereby the IRON is completely FREED from the IMPURITIES CONTRACTED in the BLAST-FURNACE, and, by judicious mixtures, rendered applicable to every kind of manufacture. Heretofore, the metal usually sold in the market has been produced from the worst pigs, scraps, and refuse of some particular blast-furnace, or set of furnaces, without any mixture, or any regard to quality, or the purpose for which it might be required. The PATENT METAL is PREPARED ON SYSTEM, and TO ORDER, for any of the following purposes:—

1. For BOILER and TANK-PLATES.
2. For TIN-PLATES, commonly called COKE-PLATES.
3. For STRONG CABLE BOLTS, RIVET, and ANGLE IRON.
4. This COMPOUND PUDDLED, heat under the hammer into a bloom, reheated, and rolled into a 6 or 6½-inch bar, makes TOPS and BOTTOMS for FLANCH and OTHER RAILS, of very superior quality, and attended with less waste than any other kind of iron used for that purpose. It is also well adapted for nail-rods, horse-shoes, and for other ordinary uses of the blacksmith.

The PATENT METAL is marked with a squirrel, and the initials "R. J. B.," and is to be had only at the "Cwmbrain Iron-Works," near Newport, Monmouthshire.

TOUGHENED CAST-IRON—STIRLING'S PATENT.

No. 1—For SMALL and MEDIUM CASTINGS.
No. 2—For HEAVY CASTINGS.
No. 3 *(Extra)*—For ROLLS, HEAVY SHAFTS, and VERY HEAVY CASTINGS.

The above is by far the strongest Cast-Iron made, and is now being extensively used where strong castings are required.

Further particulars may be obtained on application to

Messrs. GARDEN & MACANDREW,

27, Queen-street, Cheapside, from whom also the IRON can be PROCURED.

WARRANTED SAFETY FUSE.—W. BRUNTON & CO. beg to inform Mine Agents, Contractors, and Merchants, that having completed their Machinery for the MANUFACTURE of the ABOVE ARTICLE, they are enabled to offer FUSE of a very superior quality, and at considerably reduced prices.

W. B. & Co. can SUPPLY FUSE in ANY LENGTHS that may be required.

Penhellick Fuse Factory, Pool, Truro, Cornwall.

TESTIMONIALS.

We, the undersigned, hereby bear our testimony to the excellence of the Safety Fuse, manufactured by Messrs. Brunton and Co. We have had it in use in our mines; and, after sufficient trial, find it to be fully equal to any Fuse we have ever used:—

Carn Brea Mine.	*Cook's Kitchen Agents.*
R. H. Pike Purser.	John Ivey.
John Leuten, James Miners, John Vivian, John James, Agents.	William Hitchens.
North Pool Agents.	*North Roskear Agents.*
James Evans.	Joseph Vivian.
John Nancarrow.	William Michell.
Frederic Evans.	William Thomas.
South Roskear Agents.	*Tincroft Agents.*
John Dunkin.	Peter Floyd.
William Thomas.	Thomas Stainsby.
Cook's Kitchen Agents.	Thomas Lean.
Joseph Vivian.	Henry Hocken.
Richard Bennetts.	Richard Martin.
	William Nancarrow.
	Alex. Eudey, Joseph Eudey, *Wheal Agar Agents.*

SIMS'S COMBINED CYLINDER PUMPING ENGINE AT THE GUADALCANAL MINES.—The "ARTIZAN," for September, price 1s., contains a fine PLATE of this ENGINE, together with Engravings of the Experimental Forms of the Tubular Bridges, of Aitken's Auxiliary Atmospheric Cylinder, of Corrugated Cast-Iron Wheels, and of a new Elliptograph. The November Number contains

A PLATE OF THE

STEAM-COALING MACHINERY AT LOWESTOFT HARBOUR,

Engravings of the Orkney Rotary Engine, Gibbon's Pneumatic Lift for Blast-Furnaces, Fairbairn's Expansion Valves, the Royal Cornwall Polytechnic Society, Dimensions and Details of various New Steamers, Report on American Boiler Explosions, with a mass of matter interesting to the practical engineer. A single Number sent free for 15 stamps, and a List of Contents of the present year's Numbers for one stamp, addressed to W. Whytehead, publisher, *Artizan* Office, 69, Cornhill, where all communications are requested to be addressed.

Contract for Coals—General Post-Office, France.

NOTICE IS HEREBY GIVEN, that the CONTRACT for COALS, required by the General Post-office of France, originally advertised to take place on the 29th of October last, has been POSTPONED, and is FINALLY FIXED to the 16th of NOVEMBER next. Some changes having been adopted in the conditions and particulars of contract, the schedule can be seen at the General French Consulate Office, 47, King William-street, City, from Twelve to Four o'clock.

LOANS ON DEBENTURES.—The CALEDONIAN RAILWAY COMPANY are prepared to RECEIVE TENDERS OF LOANS, in sums not less than £300.—Applications to be made or addressed to this office.

By order,

125, George-street, Edinburgh, May 30, 1849. D. RANKINE, Treasurer.

TO ENGINEERS, IRONFOUNDERS, AND CAPITALISTS.—A GENTLEMAN, having secured a PATENT for an important INVENTION connected with IRONWORK and RAILWAYS, wishes to DISPOSE of the WHOLE, or PART, of his INTEREST in the same.—The invention can be seen in use to some extent, and full particulars obtained, on application (by letter) to "C. E.," care of Mr. Winder, 2, Ingram-court, Fenchurch-street, City.

STEAM-ENGINE FOR SALE.—TO BE SOLD, BY PRIVATE CONTRACT, an 85-inch cylinder STEAM-ENGINE, 10-feet stroke, equal beam.—Application to be made to Messrs. Hocking and Loam, engineers, Redruth.

PUMPING-ENGINE FOR SALE—cylinder 40 inches, stroke 4 feet, length of beam 14 feet 6 inches; fly-wheel, diameter 14 feet 6 inches; pump-rod, 4 feet stroke; boiler, 30 feet 6 inches, and 6 feet diameter; expansion apparatus, condensing, nearly new, and well adapted for mining purposes—to be sold cheap.—For terms, &c., address "A. B. C.," 3, Highfield-terrace, Kentish Town, London.

OLD IRON.—WANTED, from THIRTY to FORTY TONS of OLD BOILER PLATES, SCRAP IRON, and METALS generally, together with a continuous monthly supply. Lowest price on board, at Liverpool or London, addressed to Capt. Horton, Jamaica Coffee-house, Cornhill, London, will receive immediate attention.

WANTED, from FORTY to SIXTY FATHOMS of 9-inch or 10-inch PUMPS, with two 8½ or 9½-inch working barrels—one to work with a plunger and the other as a lift, with suitable clacks, buckets, windbores, doors, staving-boxes, rod, bolts, and nuts, complete, and in good condition.—Applications, stating price, thickness of metal, and where the articles can be inspected, to be addressed to Mr. J. Thomas, Newspaper Office, No. 1, Finch-lane, Cornhill, London.

WANTED,—FIFTY HEADS of STAMPS, with Buddles, Sieves, Racks, Launders, and other Appurtenances, for Dressing Floors; also, ONE HUNDRED FATHOMS of 8-inch PUMPS.—Apply to C. S. Richardson, 15, Old Broad-street, London.

VALUABLE MINE SHARES ON SALE.—ON SALE, a FEW SHARES in the HOLYWELL LEVEL MINE, Holywell, Flintshire, North Wales. The partners are gentlemen of respectability, resident in the neighbourhood, and every facility will be afforded for inquiry and examination. Satisfactory reasons will be given for the advertiser desiring to *lessen* his interest in the property, which has been a source of great advantage in the past, and is expected to become most productive in the future.—For further information early application is requested, to Mr. H. Walker Lucas, sharebroker, Lyndhurst Chambers, 25, North John-street, Liverpool.

MINING LAND.—WANTED, to PURCHASE, some FREEHOLD LAND, in which there is likely to be LEAD or COPPER, or where there is an OLD MINE, or a chance of discovering a new one. Any person having freehold land to sell of the above description, may meet with a purchaser for immediate cash.—Direct, stating particulars, to Thomas King, Esq., Stonebridge House, Kingsland, near London.

MINING PROPERTY.—Mr. JAMES HERRON, MINE AGENT, 33, CLEMENTS-LANE, LOMBARD-STREET, has received instructions to DISPOSE of SHARES in FIRST CLASS MINES, paying regular dividends, and yielding to the purchaser from 17½ to 25 per cent. upon his outlay. He is also in a position to transact business in the following—viz., East Wheal Rose, West Caradon, Stray Park, Tincroft, Tamar Consols, Altons, Treviskey, Trethellan, North Roskear, Condurrow, Wellington, Trelawny, East Buller, Bedford United, and Holmbush.

MR. T. A. READWIN, MINING OFFICES, *2, WINCHESTER-BUILDINGS, OLD BROAD-STREET, LONDON.*

MR. H. B. RYE, has BUSINESS to transact, both as BUYER and SELLER in all the leading MINES in Cornwall, Devon, and Wales.

For particulars, apply at his office, 77, Old Broad-street, City.

MR. GEORGE BATE, Jun., CIVIL ENGINEER AND SURVEYOR, *WOLVERHAMPTON.*

Offices in Queen-street, corner of Piper's-row.

N.B.—UNDERGROUND MINING SURVEYS accurately executed.

MESSRS. JOHN T. TEAGUE & CO. have received instructions to PURCHASE in the following MINES—viz., North Pool, South Basset, West Buller, Condurrow, Comfort, East Pool, East Buller, South Tolgus, Stray Park, and Camborne Consols.

MINING OFFICES, No. 4, KING-STREET, TRURO, CORNWALL.

N.B.—Messrs. J. T. T. & CO. are always in a position to BUY and SELL SHARES in all the leading MINES in CORNWALL and DEVON.

MR. R. TRIPP, MINING AGENT and SHAREBROKER, *BEDFORD CHAMBERS, BAMPFYLDE-STREET, EXETER.*

MR. C. S. RICHARDSON, CIVIL ENGINEER, LAND AND MINING SURVEYOR.

No. 15, OLD BROAD-STREET, LONDON.

JAMES LANE, MINING SHARE DEALER, *80, OLD BROAD-STREET, LONDON.*

CAMBORNE CONSOLS—CAUTION.—Sharebrokers and others are hereby reminded, that the THIRD and LAST CALL upon the SHARES in this company was payable on the 25th day of September last; and that, therefore, such of the share certificates which may still be in circulation, without bearing a receipt for the full amount (Seven Pounds) per share, should not be negotiated.

29, Poultry, October 31, 1849. H. L. T. VON USTER, Secretary.

GUADALCANAL SILVER MINING ASSOCIATION.—Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of shareholders will be HELD on Thursday, the 29th of November inst., at One o'clock precisely, at the offices of the association. By order,

34, Broad-street-buildings, City, Nov. 9, 1849. H. T. RYDE, Secretary.

RHYMNEY IRON COMPANY.—The ANNUAL GENERAL MEETING of the proprietors of the Rhymney Iron Company will be HELD at the company's offices, 7, Laurence Pountney-hill, at One o'clock precisely, on Wednesday, the 21st inst., as fixed by the Deed, when the accounts for the year ending the 30th of June last will be laid before the proprietors. T. E. SCUDAMORE, Secretary.

7, Laurence Pountney-hill, Nov. 9, 1849.

BOWLING IRON COMPANY.—Notice is hereby given, that the firm of Messrs. John Sturges and Co., carrying on business at the Bowling Iron-Works, in Bowling, in the parish of Bradford, in the county of York, in pursuance and by virtue of an Act of Parliament, passed in the 12th and 13th years of the reign of her present Majesty, intituled, "An Act for confirming and carrying into effect an arrangement made by the Court of Chancery concerning the proprietors of the Bowling Iron Company, and for granting certain powers to the said company," will, in future, carry on and conduct business at the Bowling Iron-works aforesaid, in the name, style, or firm of "The Bowling Iron Company;" and it is hereby requested, that all communications to or for the said firm, may hereafter be addressed in or by such last-mentioned name or style.

J. G. PALEY, JOSHUA POLLARD, } Managers of the said Company.

DUISBURG IRON-WORKS AND MINES, *IN WESTPHALIA, CLOSE TO THE RHINE.*

Managed in England according to the principles of the "Cost-book System," and in Prussia as a *Société en Commandite*, under laws limiting the liability of the shareholders to their personal subscription.

Company's Offices, 28, Moorgate-street, City.

BICKFORD'S PATENT SAFETY FUSE.—The Patentees of the ORIGINAL, and only real, SAFETY FUSE, beg to inform Merchants, Mine Agents, Railway Contractors, and all persons concerned in Blasting Operations, that, for the purpose of protecting the public in the use of a genuine article, the PATENT SAFETY FUSE *has now a thread wrought into its centre*, which being patent right, infallibly *distinguishes it from all imitations*, and ensures the continuity of the gunpowder. The Safety Fuse is now protected by a Second Patent, and manufactured by greatly improved machinery. BICKFORD, SMITH, & DAVEY, Camborne, Cornwall.

FOREIGN INTELLIGENCE.

CALIFORNIA.—From the latest advices from San Francisco, it appears that at length something like order and civilization are being again established at this city; municipal authorities had been appointed for the government of the town according to the Mexican system, the principal officer being the Alcalde, who acts as judge in civil as well as criminal cases, all of which are tried by a jury: so that at present a little rude justice is tolerably fairly executed, and the mere fact of having a court of justice to appeal to, is felt as a boon, and tends to establish confidence. In the interior, at the new town of Stockton, on the San Joaquin river, two villians, long notorious for the brutality and dishonesty of their characters, were tried, found guilty, and summarily hung. The examples have had a good effect, and it is said that American rowdyism, or blackguardism, is pretty well extinguished. An over supply of goods, which continues to increase, places the market in an unsatisfactory state. This over supply is not confined to San Francisco, the emporium of the trade of California. The principal cities of the interior, that of Sacramento on the river of that name, and Stockton on the San Joaquin, are also greatly overstocked, and goods are selling at auction at both those places at as cheap rates as they can be bought in San Francisco, and, of course, at ruinous rates to the unfortunate shippers. The number of vessels which arrived during the last month, from the 1st to the 30th of August inclusive, was 114 of all nations. These 114 vessels brought 5472 passengers, of which number 121 were women. At the date of last advices from Panama, there were about 600 persons at that place, waiting for vessels to bring them to this port. Among the late emigrants are about 100 Chinese carpenters, who, since their arrival, are engaged entirely in the erection of houses brought in frame from China. These houses are rather slight, but so much cheaper than others that they have met with a ready sale. A Chinese house, 12 feet by 24 feet, costs, put up (the shell or frame only), $1400. The town is becoming studded with these Chinese buildings, which, notwithstanding an attempt to make them look like American houses, have a character of their own, by which they are easily known. The place is becoming studded with artisans of all kinds. Workers in gold, silver, brass, iron, and tin, are showing themselves everywhere. About 9000 emigrants have arrived in the gold region across the Rocky Mountains. They made their descent principally upon the Sacramento. San Francisco continues to increase as if by magic, and, with the exception of London, or probably Liverpool, the busiest place in the world. The geological strata of the richest of the gold districts in the valley of the Sacramento, from general report, appear to be talcsose slate, occasionally interspersed with trap-rock and serpentine. This talc-slate formation contains veins of quartz, from an eighth of an inch to many yards in width, and in this quartz the gold exists. The powerful currents of water of former eras have abraded these veins, and formed enormous ravines, carrying the debris into the valley, and while the gold, from its specific gravity, was deposited, the lighter earthy portions were carried out to the great rivers. It is believed that iron ores, chrome, and other useful minerals will be found, and beautiful roofing slate is to be had in any quantity, and limestone at no great distance.

A LIVER COMPLAINT CURED BY HOLLOWAY'S PILLS.—Extract of a letter from John McLean Ferguson, Esq., dated Melbourne, Port Philip, May 9, 1849.—To Professor Holloway: Sir,—I had been afflicted nearly two years with the liver complaint, accompanied with flying pains in my shoulders, dimness of sight, and difficulty of breathing. After spending upwards of 20l. in medicines, without finding any relief, I was induced to try your pills, and by their use, and strict attention to the prescribed regimen, I am effectually cured. Grateful for the same, I publish this statement, in the hope that others so afflicted may have recourse to your invaluable medicine, and thereby derive similar benefit.—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand, London. 37

ON NERVOUS DEBILITY AND GENERATIVE DISEASES.

Just published, the fortieth thousand, an improved edition, revised and corrected, 190 pages, price 2s., in a sealed envelope, or forwarded, post-paid, by the Author, to any address, secure from observation, for 2s. 6d., in postage stamps, illustrated with numerous anatomical coloured engravings, &c.

MANHOOD: the CAUSES of its PREMATURE DECLINE, with plain directions for its perfect restoration. A Medical Essay on those diseases of the Generative Organs, emanating from solitary and sedentary habits, indiscriminate excesses, the effects of climate, and infection, &c., addressed to the sufferer in youth, manhood, and old age; with practical remarks on marriage, the treatment and care of nervous and mental debility, impotency, syphilis, and other urino-genital diseases, by which even the most shattered constitution may be restored, and reach the full period of life allotted to man. The whole illustrated with numerous anatomical engravings on steel, in colour, explaining the various functions, secretions, and structures of the reproductive organs in health and disease; with instructions for private correspondence, cases, &c.—By J. L. CURTIS, consulting surgeon, 15, Albermarle-street, Piccadilly, London.

REVIEWS OF THE WORK. 40

We feel no hesitation in saying, that there is no member of society by whom the book will not be found useful—whether such person hold the relation of a parent, preceptor, or a clergyman.—*Sun*, Evening Paper.

J. L. Curtis, *On Manhood, and the Causes of its Premature Decline; with Plain Directions for its Perfect Restoration.*—[Strange, Paternoster-row.]—This is a book replete with valuable advice and information. It developes the fearful shoals on which a large proportion of human happiness is wrecked, and furnishes a chart by which they may be avoided and escaped. Fortunate for a country would it be, did its youth put into practice the philanthropic and scientific maxims here laid down. One cause of matrimonial misery might then be banished from our land, and the race of the enervate be succeeded by a renewal of the hardy vigorous spirits of the olden time.—*United Kingdom Magazine.*

Manhood: by J. L. Curtis and Co.—Their long experience and reputation in the treatment of these painful diseases is the patient's guarantee, and well deserves for the work its immense circulation.—*Era.*

Manhood: a medical work.—To the gay and thoughtless we trust this little work will serve as a beacon to warn them of the danger attendant upon the too rash indulgence of their passions—whilst to some it may serve as a monitor in the hour of temptation, and to the afflicted as a sure guide to health.—*Chronicle.*

Published by the author, and may be had at his residence; sold also by Strange, 21, Paternoster-row, London; Heywood, Oldham-street, Manchester; Howell, 16, Church-street, Liverpool; Robinson, 11, Greenside-street, Edinburgh; Campbell, chemist, 146, Argyle-street, Glasgow; Berry and Co., Capel-street, Dublin; and by all booksellers.

THIRTY-FIRST EDITION.

Illustrated by 26 Anatomical Coloured Engravings on Steel, On Physical Disqualifications, Generative Incapacity, and Impediments to Marriage. New Edition, enlarged to 196 pages.—Just published, price 2s. 6d., or by post, direct from the establishment, 3s. 6d. in postage stamps.

THE SILENT FRIEND: a medical work, on the infirmities and decay of the generative system, from excessive indulgence, infection, and the inordinate use of mercury, with remarks on marriage, and the means of obviating certain disqualifications, illustrated by 26 coloured engravings. By R. & L. PERRY & Co., consulting surgeons, 19, Berners-street, Oxford-street, London. Published by the authors; sold by Strange, 21, Paternoster-row; Hannay, 63, and Sanger, 150, Oxford-street; Starie, 23, Titchborne-street, Haymarket; and Gordon 146, Leadenhall-street. 39

PART THE FIRST treats of the anatomy and physiology of the reproductive organs, and is illustrated by six coloured engravings.—PART THE SECOND treats of the consequences resulting from excessive indulgence, and their lamentable effects on the system, producing mental and bodily weakness, nervous excitement, and generative incapacity; it is illustrated by three explanatory engravings.—PART THE THIRD treats of the diseases resulting from infection, either in the primary or secondary form, and contains explicit directions for their treatment. This section is illustrated by 17 coloured engravings.—PART THE FOURTH contains a prescription for the prevention of disease by a simple application, by which the danger of infection is obviated. This important part of the work should not escape the reader's notice.—PART THE FIFTH is devoted to the consideration of marriage and its duties. The causes of unproductive unions are also considered, and the whole subject critically and philosophically inquired into.

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BY SAMUEL LA'MERT, M.D., 37, BEDFORD-SQUARE, LONDON. 40

Doctor of Medicine, Matriculated Member of the University of Edinburgh, Licentiate of Apothecaries' Hall, London, Honorary Member of the London Hospital Medical Society, &c.

REVIEWS OF THE WORK.

"The author of this singular and talented work is a legally qualified medical man, who has evidently had considerable experience in the treatment of the various disorders arising from the follies and frailties of early indiscretion. The engravings are an invaluable addition, by demonstrating the consequences of excesses, which must act as a salutary warning to youth and maturity, and by its perusal, many questions may be satisfactorily applied to, that admit of no appeal, even to the most confidential friend."—*Era.*

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The Metallurgical Treatment of Ores.

By JOHN MITCHELL, Esq., F.C.S., author of *A Manual of Practical Assaying*, &c. &c.

No. XXXIV.—[*Continued from October 20.*]

The heat disengaged by half a volume of vapour of carbon, burning in the furnace into carbonic acid, is represented by 7072 units. In the boshes, the carbonic acid thus formed combines with another half volume of carbon vapour, and renders 4395 units of sensible heat latent. If the very feeble calorific effects produced during the reduction of the ores by the combustible gases be neglected, there is no other production of heat in the furnace. The combustible gases burn to sheer loss from the furnace top, disengaging 11,267 units of heat, or very nearly double that which is rendered effective in the furnace itself. In a great number of works, however, this source of heat is employed, as will be explained hereafter. The above results have been obtained, as before stated, from a furnace charged with charcoal; we will now compare them with those obtained from a coke-fed furnace.

The gas from the combustion of coke, taken about 7 inches above the tuyère, contained traces of sulphuretted hydrogen; moreover, a greater amount of heat is developed in a coke than in a charcoal furnace. In a furnace charged with coke the ascending gaseous column undergoes the same modification as in a charcoal furnace; but as coke resists the action of oxygen much longer than charcoal, and as it decomposes carbonic acid more slowly into oxide of carbon, the changes in the composition of the gaseous column are not so rapid, and carbonic acid is found in the gas near the tuyère, which is not the case in a charcoal furnace. These circumstances explain why it is necessary that a furnace fed with coke should be higher than one fed with charcoal.

The following are some analyses of the gases obtained from a coke furnace—they are also by Ebelmen:—

Gas from near the Tuyère.—Carbonic acid, 8·11; carbonic oxide, 16·53; hydrogen, 9·26; nitrogen, 75·10 = 100·00.

Gas from about One Foot above the Tuyère.—Carbonic acid, 0·16; carbonic oxide. 36·15; hydrogen, 0·99; nitrogen, 62·70 = 100·00.

Gas from Top of the Boshes.—Carbonic acid, 1·70; carbonic oxide, 34·01; hydrogen, 1·35; nitrogen, 64·47 = 100·00.

Gas from about the Half of the Upper Internal Cavity.—Carbonic acid, 0·68; carbonic oxide, 35·12; hydrogen, 1·48; nitrogen, 62·72 = 100·00.

Gas from the Top of the Upper Internal Cavity (Throat).—Carbonic acid, 7·15; carbonic oxide, 28·37; hydrogen, 2·01; nitrogen, 62·47 = 100·00.

From these analyses it may be seen that the ascending column, when at the boshes, contains but little carbonic acid, and that the oxygen of the carbonic oxide is to the nitrogen in the same proportion as in atmospheric air, which proves that the ore of the descending column has lost all its oxygen on its arrival at the upper part of the boshes, for otherwise the oxygen of the oxide of carbon would be to the nitrogen in a greater proportion than in air, so that the reducing action takes place in the upper part of the internal cavity; hence the large quantity of carbonic acid passing off from the furnace top. The descending column, therefore, is gradually deprived of its water, carbonic acid, and oxygen; it is then near the lower part of the boshes. The metallic iron being then in but a very slightly oxidating atmosphere, and at a very high temperature, absorbs carbon and becomes cast-iron. A small quantity of silicic acid, as well as lime (and the other earthy bases), is reduced by contact at once with highly heated metallic iron and carbon, and the metallic substances so produced alloy with the iron. A little lower down in the furnace the cast-iron and earthy matters enter into fusion (the latter formmg a variety of silicates) and fall into the hearth, where they separate, by reason of their different densities.

Calcination of Iron Ores.—Iron ores are generally accompanied by silicic acid; and when this is absent, it must be added, in order to determine the fusion of certain earthy matters, which are generally found with the oxide of iron as existing in the ore. As already stated in a previous paper, silicic acid possesses the property of forming, with protoxide of iron, a silicate which cannot be reduced by carbonaceous matters—so that the greater quantity of this silicate formed during the process of reduction, the smaller will be the yield of metal. It is, therefore, essential to prevent, if possible, the formation of any of the compounds in question; and, among the means employed, calcination is not the least important. During calcination the mine loses water, carbonic acid, and all the volatile matters it may contain; it also becomes porous, which allows it to be more freely permeated by the reducing gases of the blast furnace, so that the iron is reduced to a metallic state long before silicates can be formed; and the metal already deoxidised cannot combine with silicic acid, more especially in the presence of powerful bases, such as lime, magnesia, and alumina. It may be here mentioned, that it is highly improper to calcine mine containing sulphuret of iron, sulphuret of copper, or any other sulphuret, with that free from such compounds; for the sulphuric acid formed during the operation would defile the whole mass, and the iron produced be inferior in quality. The calcination of iron-stone much resembles the burning of limestone, and the same processes succeed equally well with both substances, so that this operation may either be performed in heaps freely exposed to the air, in a walled enclosure, or in kilns. In the first process, a piece of ground is properly levelled, and a layer of coal, equal in area to the intended area of the roasting heap, is spread out; on this a layer of mine, then a layer of coal, and so on alternately, until the heap is judged of sufficient size. Its length is generally very much greater than its breadth. The operation of calcination is commenced by setting fire to one end of the pile, and then allowing it to burn out. The thickness of the layers depends on the quality of the fuel, and the degree of heat the mine can support without partial fusion. As just stated, the roasting is sometimes carried on in spaces enclosed by low walls. The disposition of the heap is as above; but there is a considerable advantage in this method, as the heat is spread more evenly over the whole roasting mass, so that there is not so much fear of vitrifaction, or of imperfect calcination; it also effects a saving in fuel. In the last method, or by means of kilns, the operation is continuous, and conducted exactly in the same manner as lime burning.

On the Preparation of Metallic Iron.—It has already been shown that the oxides of iron are readily and completely reduced by carbonic oxide, and from this it might be judged that the preparation of metallic iron would be a matter of no great difficulty; but it is otherwise. In the working of iron ores, if the furnace be properly constructed, and the manager supplies the proper amount of fuel and mine, the reduction of the oxide of iron present is an easy matter; but, when reduced, it is still intimately mixed with the matrix or gangue of the mine, so that its particles cannot come together. If the gangue were very fusible, it would be sufficient to heat the ore to that temperature at which it became liquid. A spongy metallic mass of iron would remain, which could either be hammered or rolled, to express the excess of cinder, the particles of iron would unite, and malleable iron result. But if the gangue were difficultly fusible, or fusible only at the melting point of iron, then the latter, in contact with carbonaceous matter, would change into cast-iron, so that we should no longer have malleable but cast metal.

Now, the ordinary matrix of iron ore is clay or quartzose matter—that is to say, two very nearly infusible substances. Their fusion may be effected by two methods. If very rich mine be employed, and it be the object to produce malleable iron in a direct manner, the ore is heated in contact with charcoal; the gangue then combines with a portion of oxide of iron, which has escaped reduction, and a very fusible double silicate of alumina and protoxide of iron results. There is, consequently, no necessity to employ a very high temperature, so that the metal does not become cast-iron, and it only remains to express the slag or cinder by percussion or compression. But the loss of iron must necessarily be very great when the mine contains much gangue, so that this process can only be employed with very rich minerals. If it be wished, on the contrary, to completely extract the metal from the mine, it is necessary to render the silicate of alumina fusible by presenting to it some other base than protoxide of iron, and the only base which can be economically employed is lime; but the double silicate of lime and alumina is much less fusible than the silicate of alumina and iron, consequently a very much higher temperature must be employed; the iron becomes cast metal, which liquifies at the same time as the double silicate—slag or cinder. These two methods, therefore, give very different results. The first is employed but in few localities, requires very rich pure mine, and occasions a considerable loss of fuel. It is known under the name of the Catalan method, and is used in the Pyrenees, Corsica, &c.

Treatment of Iron Ores by the Catalan Method.—The Catalan forge consists of a kind of crucible in the form of a quadrangular cavity, is generally about 28 inches deep, and built against the wall of the mill. It is formed in a mass of masonry, composed of dry stones, cemented with clay. The part of this building occupied by the crucible does not rest immediately on the ground, but on several small stone arches, which prevent moisture from entering the crucible, and thus deranging the working. Above these arches is a layer of forge-slag and clay, which is covered by a block of granite, forming the bottom or hearth of the crucible. Above the stone bottom rise the four lateral faces. The blast employed is produced by the water bellows. The hammer is worked also by water power, the head weighing about 10 cwts. The following is the *modus operandi*:—It must be supposed that a mass of iron has just been removed from the furnace to the hammer, and that the former is now ready for recharging. For this end the incandescent charcoal is removed from the crucible, and the adhering scoria detached from the bottom and sides, the burning coals are returned to the furnace, which is filled just to the level of the tuyère. A workman then separates the interior of the furnace into two compartments, by means of a shovel, placed vertically and parallel to the tuyère side of the furnace, so that the compartment between the tuyère and the shovel is twice the size of that on the opposite side of the shovel. Other workmen fill the larger space with charcoal, and the smaller with mine, about the size of nuts, so that two walls, as it were, are formed, one of charcoal and the other of ore. The surface of the ore is then covered with a well-pressed layer of small charcoal, moistened with water. When the charge is thus made, the blast may be commenced, feebly at first, and then gradually augmented. The ore is thus gradually reduced. In proportion as the charcoal is consumed more is added, and it is sprinkled over with a quantity of the ore in tolerably fine powder, and that it may not fall too rapidly through the interstices of the charcoal, it is moistened with water. Under the influence of the air thrown into the furnace by the tuyère, the charcoal is converted in the space near the tuyère into carbonic acid; but further off the carbonic acid is decomposed into carbonic oxide. The greater portion of this carbonic oxide is obliged to pass through the mine, which has already acquired a very considerable temperature, reducing a portion of the oxide of iron to the state of metallic iron; but the whole of the oxide of iron is not reduced—a portion remains in the state of protoxide of iron, and combines with the gangue of the ore, forming a very fusible multiple silicate. A great portion of this silicate filters through the mass, and forms a fluid portion at the bottom of the crucible. This is occasionally allowed to run off, by opening a small tap hole. At the end of about two hours the finely-powdered ore, which has descended with the fuel, has given a certain amount of iron, which is formed at the bottom of the crucible; the workman then commences to collect it in the form of a bloom. The blast is increased, and, by carefully plunging a rod between the ore and the front part of the furnace, he successively collects the mine that seems the best prepared; at the same time, the charging of fine ore and charcoal goes on more rapidly. About five hours after the commencement of the operation, the mine has completely descended in the crucible, and the workman collects with a rod all the fragments of spongy iron, by passing it in all directions throughout the furnace. When thus collected, it is submitted to the hammer. The whole of the operation lasts about six hours, and from 300 to 330 lbs. of malleable iron are produced from about 1000 lbs. of ore and ½ ton of charcoal.

[*To be continued in next week's Journal.*]

VENTILATION OF COLLIERIES.—We have received from our old correspondent, Mr. A. T. J. Martin, now a resident in South Australia, a description of an hydraulic blast wheel for colliery ventilation, designed by him as long since as 1835. As the subject is now one of such general interest we cheerfully insert it, which we think may be well understood without a diagram. The top of the pit is covered by a segment of a hollow sphere in connection with a horizontal cylinder at surface adjoining; within this cylinder works a screw or inclined plane, wound round a shaft half immersed in water, connected outside with a drum or pulley to be worked by the power of the engine. This screw put in motion, the passage of the air being cut off by the water, the contents of the shaft must pass through its coils out to the atmosphere with a rapidity and in quantity proportionate to the size of the apparatus and its velocity. It might be 40 feet in diameter if necessary. By reversing the motion, air might be forced into the mine, and our mechanical readers will perceive numerous modifications by which it might be advantageously applied.

STEEL SPRINGS.—Mr. Smith, of Springfield, Vermont, has patented an improvement in the method of preserving the shape of steel springs in the process of tempering them, represented as "particularly applicable to the manufacture of curved flat springs, for trusses or for various other articles—1. The process, consisting of hardening the spring in the usual manner, when off the mould.—2. In drawing the temper (it being still off the mould), to such extent as to enable me to apply it to the mould without danger of breaking it while so doing.—3. In clamping said spring to a mould, and plunging it and the mould so clamped together into a bath of melted lead, or other suitable metal, or material or materials in a fluid state, and raised to the temperature necessary to produce the desired effect of preserving the shape of the spring, or that given to it by the mould."

THE GOLD MINES OF SIBERIA.—There are ancient legends of a land in the north-east, in which griffins guard immense heaps of gold. These legends are by no means fables. All the eastern declivities of all the mountains from the Ural to Kamschatka end in valleys of river sand, and a handful of that sand contains more or less of gold. But there are places where fabulous riches are heaped up. The official returns of the year 1843, show that in that year the quantity of gold found amounted to 480 cwts.; but the real amount of the gold which was found is not less than 700 cwts.—that is to say, double of what is annually gained in all the mines on the face of the earth. And yet up to the present, only that gold has been found which the floods brought down, and we may ask, where is the stock which yields such splendid crumbs and leavings? Do the griffins still guard it for a bolder and luckier generation than ours? —*Geheime Regierungsrath.*

ABERDEEN RAILWAY.—The directors have intimated to the shareholders their intention to apply to Parliament in the ensuing session for authority to increase the capital. They state that the necessity for an augmentation of the capital does not arise from any unforeseen increase in the cost of the undertaking, but in consequence of its being found advisable for the company to obtain the necessary rolling stock, for working the line. Had they been able to effect an arrangement on satisfactory terms for working the line an increase of the capital might not have been required. It has been found that unless the company supply their own working stock no contract would be undertaken by any person unless on terms disadvantageous to the shareholders. The line is now open to within 12 miles of Aberdeen, and the directors have contracted for a supply of additional working plant to such an extent as is considered necessary for accommodating the traffic. They hope shortly to be able to announce the further opening of the line for traffic to within six miles of Aberdeen.

CALEDONIAN RAILWAY.—It appears from a letter addressed by Mr. M'Micking to Mr. Glyn, that the directors of this company have made a proposal to the directors of the London and North-Western Company to transfer to them the working stock of the Caledonian Company, with the view of obtaining an advance of money thereon, and at the same time to enter into an agreement with the London and North-Western Company to work the line; that the money sought to be borrowed is to meet certain bills, and other personal obligations not under the company's seal, and not contracted in a manner necessary to render them valid and binding upon the company.

NORTH STAFFORDSHIRE RAILWAY.—Traffic return for the month of Sept.:—By gross receipts of canal and railway, 21,085*l.* 19s. 2d.—To working expenses, canal carrying, limestone getting, and depreciation fund, 12,740*l.* 8s. 5d.; to interest on debentures and canal shares, 6575*l.*; to estimated balance available for dividend on share capital, 1770*l.* 10s. 9d.—21,085*l.* 19s. 2d.

OPENING OF THE NORWICH EXTENSION OF THE EASTERN UNION.—This company's extension into Norwich was opened on Wednesday, with considerable ceremony, by the directors and shareholders resident in the various localities. At half-past 11 o'clock a special train proceeded from the Ipswich terminus, having left London at 10 minutes past 8, and Colchester at 45 minutes past 10, conveying the directors and shareholders over the 31 miles, the length of the newly opened extension from Ipswich to Norwich, and arriving at the station in the latter city at about 1 o'clock. A train from Bury St. Edmund's at 12 joined in with the special train at the Haughley junction. In the evening there was a public dinner of the citizens of Norwich in St. Andrew's-hall, in celebration of the event. The line is expected to be of great advantage in developing the agricultural and commercial interests of the East Union districts. By it the distance from Norwich to the metropolis will, as compared with the route *vid* Cambridge, be reduced several miles.

THE GREAT WESTERN FISHERIES COMPANY.—The managers of this enterprising company have, so far, had no reason to regret the reception of their project in Ireland, and there really seems to be a prospect of beneficial results accruing from their operations. The company's agents have taken three islands, the property of the Marquis of Sligo, and I understand that fisheries will be immediately established at those points. In addition to this favourable beginning, I learn that a wealthy landed proprietor, whose estates border the Atlantic, is so well pleased with the undertaking that he has actually offered to invest in it a large portion of his disposable property.

ACCIDENTS.

Dalmellington.—A great part of the coal-pit, known by the name of No. 1, about half-a-mile from the village of Dalmellington, fell in, on Tuesday night. It appeared, on examination, that a great part of the bog, to the extent of nearly half-an-acre, had sunk, a little below the junction of the town and Cumnock barns—the waters of both running in and filling up the pit. It happened, however, that only two men were in the pit—one of them belonging to Dalmellington, the other living at Craigmark. The two men have not yet been found. On Wednesday, workmen were busy trying to turn the water off, which lay so deep around the mouth of the pit, that boats had to be put on. There is no hope of the men being got out alive.—*Ayr Advertiser.*

Merthyr.—As Evan Owen was at work at a pit near Plymouth Works, a stage upon which he was standing gave way, and he fell upon his head. He was taken home, and seemed recovering for a day or two, but became delirious, and died soon after.——As David Rees, a haulier, was working near the Dyffryn, he was knocked down, when the trains passed over his thighs and broke them. He was taken home, and lingered for some days in great pain, but eventually died.

Ding Dong Mine.—A serious accident happened to a lad 12 years old, named J. Orchard. It appears that by some means his frock became entangled in the machinery, and he was thrown with great violence to the ground, one of his arms being severely fractured, and his face much cut. Other, and more serious injuries would have been inflicted had not, most fortunately, his frock given way. He was immediately conveyed to his father's residence, at Madron Church Town, where medical aid was in attendance, and the poor lad lies in a precarious state.

Dudley.—Samuel Atherley was killed by a fall of rubbish down a pit at the colliery of the New British Iron Company.

Dilston.—As John Clay, 12 years of age, an apprentice to a miner, who worked in a coal-pit at Parkfield Colliery, was walking along the gateroad with two or three other boys, for the purpose of going up the pit, about 2 or 3 cwts. of coal fell from the roof, and nearly covered his body. The coal was removed as speedily as possible, but the deceased had received several cuts and fractures, and was quite dead.

Aberaron.—R. Thomas was suffocated by entering a part of the mine where it was known that foul air had accumulated.

Wall's-End.—The large boiler attached to the engine of the Church Pit, burst on Thursday with a fearful crash, and was carried to a considerable height into the air; fortunately no person being near at the time, no loss of life occurred.

THORNEYCROFT'S
PATENT RAILWAY AXLES, RAILS, AND TYRES.

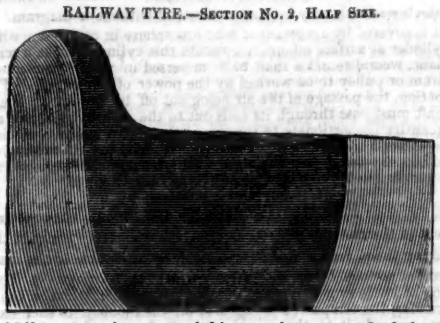
RAILWAY TYRE.—Section No. 1, Half Size.

The middle, or wearing, part of this tyre is composed of chrystaline charcoal iron, the hardest and soundest iron made. The outward edges are made from a mixture of India charcoal pig with the toughest fibrous iron —the whole made upon an improved principle into one homogenous mass.

These charcoal tyres are warranted better and more durable than any tyres made in England.

Price—£15 per ton net at the works, up to 3½ cwts. each.

RAILWAY TYRE.—Section No. 2, Half Size.



The middle, or wearing, part of this tyre is composed of the best refined chrystaline puddled iron.

The outward edges are of the best No. 3 fibrous iron, and put together upon an improved principle into one homogenous mass.

These tyres are warranted quite equal to any made in Staffordshire.

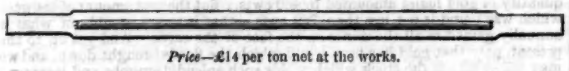
Price—£10 10s. per ton net at the works, up to 3½ cwts. each.

BEST STAFFORDSHIRE TYRES—£8 10s. per ton at the works, up to 3 cwts. each.

Fig. 1.

SECTION OF BRIGG'S PATENT COMPOUND AXLE.

Scale ½ inch to a foot: parallel axle.



Price—£14 per ton net at the works.

Fig. 2.

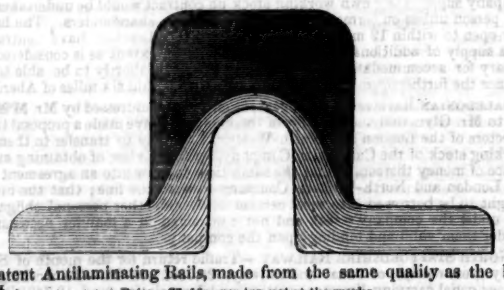
SECTION OF BRIGG'S PATENT COMPOUND AXLE,

Showing the extent to which the internal bar is welded solid at each end, drawn down in the middle half an inch.

Price—£15 per ton net at the works.

PATENT ANTILAMINATING CHARCOAL RAIL.—Section No. 1, Half Size.

Price—£10 per ton net at the works.



Patent Antilaminating Rails, made from the same quality as the best S & B iron. *Price*—£7 10s. per ton net at the works.

The upper, or wearing, part of these two sections of rails is made from antilaminating charcoal iron, much harder than any other iron, perfectly free from lamina. The under, or fibrous, part from best No. 3 puddled iron.

PATENT ANTILAMINATING CHARCOAL RAIL.—Section No. 2, Half Size.

Price—£10 per ton net at the works.

Patent Antilaminating Rails, made from the same quality as the best S & B iron. *Price*—£7 10s. per ton net at the works.

Rails of the same sections are made from puddled iron, quite free from lamina in the wearing part, but soft and less durable than charcoal rails.

This principle is applicable to any kind of rails.

I beg to inform the railway public, that the machinery for testing the strength of axles, and the strength and soundness of the tyres, is now ready; and I offer it to the public without any charge for its use, to try any one's make of axles and tyres they may think proper. A machine has been designed, and is now making by Messrs. Fox, Henderson, and Co., for proving the quality and durability of tyres and rails by actual wear and tear, the same as when at work on a railway, at any speed you like. The name of the designer is, I trust, a sufficient guarantee for its efficiency; in fact, it will be so true a test, that it must prove satisfactory to the most fastidious mind; and, so soon as it is completed, it shall be offered to the public, on the same terms as the testing machine above-mentioned.

Shrubbery Iron-Works, Wolverhampton. G. B. Thorneycroft.

THE PATENT ANTILAMINATING CHARCOAL & PUDDLED RAILS—REPORT.

TO MESSRS. G. B. THORNEYCROFT AND CO.

Gentlemen,—Agreeable to your request—viz.: that I should examine and report upon the present condition of a quantity of rails manufactured by you, and laid down on the line of the Great Western Railway—I have to state, as a preliminary, that having ascertained the exact position on the line on which your rails were laid (the largest quantity on the main line, in close proximity to the Paddington station, where the trains are stopped and started; the other quantity, consisting only of two rails, on that part of the line known as the Acton cutting, directly under Churche's Bridge), I had the whole thoroughly cleaned; after which I found there were two descriptions of rails—the one marked T P, which indicates that the rail is what you term a patent antilaminating rail, from the best S & B iron; the other description of rail was marked T C, which intimates that the upper, or wearing part, is made from antilaminating charcoal-iron, the under or fibrous part from best No. 3 puddled iron. On one side of the main line there were 13 rails, marked T P, and 23 rails marked T C; on the other side, and directly opposite to the former, there were 15 rails marked T C, and 19 rails marked T P, the whole were laid quite promiscuously, without any regard to order, or alteration in point of quality, and that they were all laid down in July and August of the year 1847—so that they have now been 2¼ years subject to the wear and tear of the heaviest railway engines made, and in a situation the most trying in which rails could possibly be placed on the line of the Great Western Railway.

I have now to report that, after a most careful and distinct examination of each rail, I found that all the rails marked T C were perfect in every part, except their upper surface, which was slightly reduced, in consequence of the constant abrasion to which they are subject from the starting and stopping of the trains. During my investigation, I had an opportunity of witnessing one of the heavy engines (I believe about 35 tons weight) backing a train up to the station; the driving-wheels were moving through at least three times the space the train was passing through; the effect on the rails was a bright line of about one inch broad, as if it had been produced by a planing machine. These rails have been subject to this ordeal, oft repeated, every day for 2¼ years; yet there is not the least appearance of lamination, or crushing, nor anything to indicate change from their original state, beyond the wearing down of the upper surface in the manner already stated.

The same remarks apply equally to the rails marked T P, with the exception of 6 rails out of the 32 of that mark; these 6 I found to have had some one piece and others two crushed out of one edge, but still in a condition to last a long time. Those parts of the rails where the crushing had taken place appeared to me to have been induced by the introduction of pieces of cinder into the mass of iron while in process of manufacture—thus preventing the homogenous compact of that part of the rails which had been crushed. There is, however, no appearance of lamination, and little or no visible difference between the present state of the 26 T P rails, which remain whole, and the charcoal rails marked T C, which are all perfect, except that they are not so hard, and a little more worn than the T C rails. I have further to state, that I understand that several rails laid down at the same time as the T P and T C rails, and in immediate connection with them, have long ago been removed as unfit for further use. These rails were shown to me quite worn out; and that some of those now on the line, which have not been there near the length of time that your rails have been, are so weakened by lamination and crushing, that shortly they will have to be replaced by others; and it is worthy of special notice, that your T P and T C rails are only 70 lbs. per yard, while their compeers on the same line (if I may judge from appearance) are considerably heavier.

My next examination was at the Acton cutting, on the two rails laid down there, both of which I found marked T P, which, as before described, are patent antilaminating rails, from the same quality as the best S & B iron; from their lightness of appearance, they presented rather a striking contrast to all the rails in their immediate vicinity. These two rails were laid down in August, 1847, and are now in as perfect condition as when laid down; while large numbers of the rails on each line in that locality show extensive crushing and lamination, which, in a short time, must render them unfit for use; while the two rails just referred to bid fair to stand the wear and tear of many years—in fact, as they do not laminate or crush, they will stand until the iron is worn down so far as to be unable any longer to bear the weight passing over them.

It would not be a difficult task to ascertain the amount of saving which would have been effected on railways, as well on the original cost as on the maintenance of the permanent way, had the directors of the several railways made themselves earlier acquainted with the quality of these antilaminating rails, which after the long and severe trials they have had, and the proofs of their superiority to any rails yet made, at once invite the examination of directors and engineers, that they may satisfy themselves of the unprecedented durability of these rails. It is, therefore, not too much to presume, that now the railway proprietary, and the railway directors especially, having the most incontestible proofs of the durability of the rails made on the antilaminating principle of the T C and T. P rails, that they will in future exercise that care and control over the purchase of those articles, which form so heavy an item of the current expenses on every railway, that by reducing these expenses, public confidence in railway property may be again restored, and railways once more present a safe and profitable investment for capital.

I would here remark, that the rails I refer to, as being in competition with your antilaminating rails, are made by an extra process, at a cost of from 2*l.* to 3*l.* per ton more than the ordinary make of rails; this you can ascertain exactly, as that portion of the rails laid down at the Acton cutting are of the same make as the rails supplied to the Oxford, Worcester, and Wolverhampton Railway Company. It is not possible for me to form an exact opinion of the length of time these antilaminating rails will last, but I have no doubt, from all I have seen, that the T P rails will wear, at least, as long as two or three sets of the present make of rails, and the T C or charcoal rails very much longer than the T P—indeed, nothing but time can determine the durability of these rails. It is quite clear to me, that a railway laid down as under—viz., the permanent way with the rails marked T P, and the stations, crossings, and switches, with the T C or charcoal rails, there would scarcely be an end to their durability, and the saving effected in keeping the permanent way in repair would be immense; besides, the rails would do much lighter than the present laminating rail. I am indebted to the polite assistance of the agents of the company, in affording me facilities for examination, and also for the information I required, but particularly to Mr. Gibson, whose attentions have my best thanks.

Nov. 8. Robert Bowman, Engineer.

Sir,—The defect in the 6 rails referred to arises from the calcined cinder, of which the puddling furnace sides and the bottom is formed, getting into the puddled iron during that process, which defect I can effectually prevent in future. I would here remark, that I had every rail laid down that came from the rolls, in order that if any imperfection existed in the process I might find it out, and this end has been fully answered.

Wolverhampton, Nov. 8. G. B. Thorneycroft.

Damage to a Colliery at Tipton.—At the police-office, on Monday last, Mr. John Walker Turton, Sedgley, coalmaster, attended with Mr. T. M. Whitehouse, solicitor, to support a complaint against John Hughes, and four other persons, labourers, for damage done by them to property connected with the colliery of Mr. Turton, at Prince's End, near Tipton. The circumstances were as follow:—Mr. Turton had been the owner of the colliery since 1832, and during that time had worked it, excepting for the last two years, when it had been discontinued in consequence of the presence of water. It appeared also that the property previously belonged to a Mr. Price, who had worked the colliery, and that no interruption had taken place until within about a year from the present time, when a woman of the name of Beard, who was in court, had made a claim to the property, and had authorised the parties charged to do the damage complained of. The above circumstances, and the amount of damage, were proved by several witnesses. Mr. Hall, of Bilston, appeared for the defendants, and after cross-examining Mr. Turton, submitted that as the injury complained of had been done under a fair and reasonable supposition of right, the magistrates had no jurisdiction. Mr. Hall afterwards examined the claimant to the property, but the defendants were ultimately fined 4*l.* each, or to be committed to prison in default of payment, the bench at the same time observing that the claimant had offered no evidence whatever to show to the court that the defendants had any supposition of a fair or reasonable right to injure and destroy property as they had done.—*Wolverhampton Chronicle.*

STEWART AND CO.'S CAST-IRON PIPE MANUFACTORY.

We had lately the pleasure of visiting the extensive patent cast-iron pipe manufactory of Messrs. D. Y. Stewart and Co., at St. Rollox, where there are at present being manufactured no fewer than 10½ miles of cast-iron pipe, for the Liverpool Corporation Water Works, of which Mr. Hawksley, of Nottingham, is the engineer. The works have been erected exclusively for the manufacture of cast-iron pipes, by a method which has been patented, and applies equally to the moulding and founding, combining the greatest possible strength with the utmost economy of material. We understand, from competent sources, that Messrs. Stewart's pipes have been pronounced superior to any yet produced, and are, consequently, receiving a preference over any other. The improvement discovered by Mr. Stewart applies to the moulding and casting of pipes; and the opening of the company's manufactory in Glasgow has been the means of establishing a branch of industry in this city, hitherto almost exclusively confined to Staffordshire and other English counties, and the preference already given to the invention, bids fair to render this an important branch of manufacture amongst the many for which Glasgow is celebrated.

Previous to Mr. Stewart's discovery it had been found impossible, according to the methods of moulding employed, to prevent irregularity in the thickness of the metal, towards the middle of the tube, a defect which created a great waste of metal, besides proving a source of weakness. The new process is simple and ingenious, and pipes can be produced by it, not only free from the defects formerly so much complained of—that is, quite smooth and regular, of uniform thickness, free from unseemly ridges, and perfectly straight—but at a cheaper rate. On entering the works, which are extensive, one is struck with the busy scene presented. Steam is applied in every department, save that in which manul labour is indispensably necessary, and everything proceeds like clockwork. The situation, also, is peculiarly favourable, being close to the Caledonian line of railway, in connection with which rails have been laid from the works. It is our intention to endeavour to convey to our readers an idea of the process of pipe-casting, as adopted by Messrs. Stewart. The first operation is the moulding. First, the sand is rammed into a metal box, placed in a vertical position, by an ingenious apparatus, having the merit of securing perfect uniformity of density. This accomplished, which occupies about sixteen minutes, the box containing the mould, seated on a small truck, is passed along a line of rails a short distance, where it is received by two men who form wha are termed the faucit or socket, and cover the mould with a black liquid, which gives it a smooth surface, and has the effect of preventing the sand from adhering to the molten iron. The mould is then passed along the rails to the stove, where it undergoes the process of drying by means of heated air. While all this is going on—and in no department are the men a minute idle, so soon as one box is rammed with sand another being at hand to proceed with—on a platform at a different end of the works are a few boys, making the core, or body by which the cavity is produced. The core is formed upon an iron cylinder perforated with holes for the escape of the gases produced during casting, by wrapping round its surface a rope of hay, on the top of which is laid a thin coating of loam, and it is then dried in an appropriate stove. The use of the hay rope will appear afterwards. At this point are the furnaces for melting the iron. After the mould is properly dried, it is passed round to the furnace, and the core having been let down into the mould, which leaves a space of one inch round between it and the mould, that being the thickness of the pipe, the molten metal is poured in, and thus the pipe is cast. Perhaps the most interesting process is the casting. It is really beautiful to witness the bright burning liquid poured into the mould. While making its way around the top of the mould, seeking an entrance to the small holes by which it is admitted, it meets with a slight resistance from the air, producing beautiful corruscations, which flit around the apartment sparkling like stars, and then vanish. In the sides of the box containing the mould are numerous small air escapes, and from these during the process are emitted beautifully bright blue and green lights, presenting a column of four yards in length, and 150 inches in circumference, illuminated with gases of varied hues.

Our readers are no doubt aware that, while cooling, metal undergoes a process of contraction. Now the object of wrapping round the surface of the core, above referred to, a rope of hay, is to prevent adhesion, which is accomplished by the rope burning away, and leaving free the small space which it occupied. The core, through the application of a hydraulic press, is thus the more easily started and raised up with the assistance of a crane. On the removal of the pipes from the mould, it is remarkable to observe their freeness from defects, and their uniform thickness. Any little protuberance having been knocked off, the pipe is subjected to a given water pressure and finished.

At the commencement of this notice we mentioned that the Messrs. Stewart were engaged with an order for the Liverpool Water Company. Each pipe measures 4 yards in length, and is 44 inches in diameter. The quantity of metal in each pipe is 2 tons 13 cwts. We understand that at present there is being produced a ¼ of a mile of pipe weekly, so that it will not take long for the company to accomplish their extensive order of 10½ miles.—*Scottish Guardian.*

Manufacture of Steam-Engines in America.—We were somewhat surprised, a few days since, on examination, to observe what a number of engines are in the course of construction in our city. The greatest activity prevails in most of our large engine establishments, and the value of the work in hand cannot amount to less than $2,000,000 or $3,000,000. At the Allaire Works three very handsome and substantial engines have recently been built, one for the Spanish steam-ship, *Don*, intended for a cruiser on the coast of Cuba by the Spanish Government; one for the new Fulton ferry-boat, *Manhattan*, the largest ferry-boat ever constructed in New York; and one for the steamer, *Gold Hunter*, intended to navigate the various gold bearing rivers of California. The four large boilers of the sea steamer, *Pacific*, have also been finished, and will each weigh over 50 tons of solid iron. The engines and other machinery for the *Antarctic*, another of Collins's line of ocean steamers, also building at the Allaire Works, are advancing rapidly towards completion. The engines will, if anything, be a trifle larger and more powerful than those of the *Pacific*, and with the other machinery will cost $250,000. The whole cost of each steamer of this line is estimated at $600,000. The workmanship and finish, as well as the material used in the construction of these mammoth engines, are all of the very best kind, and we doubt if they can be excelled at the best English or Scotch foundries. At Sector and Co.'s foundry there are in course of construction the engines and machinery for the Ocean steamer *Georgia*, the works of a steamer intended for Lake Erie, the engines for two steamers intended to run on Lake Oneida, and the machinery for one large class steamer to run on Long Island Sound. At the Novelty Works also a large amount of work is on hand, and as many hands are employed as can conveniently work. The engines and other machinery are constructing here for three ocean steam-ships, and there are also large contracts on hand for an extensive sugar refinery at Bristol, a large paper mill at Paterson; and various other similar establishments at the south. Altogether the engine establishments of the city never were in a more prosperous condition, and the work executed will undoubtedly soon be considered, and justly, superior to any manufactured elsewhere, either in Europe or America.—*New York Express*, Oct. 23.

Water.—It is the universal talk in London that water must, every where, be rendered in larger quantities, of purer quality, and at a cheaper rate, than heretofore. If there be any exceptions to the rule, they are unknown to the writer; and if discovered by any one else will only go, after all, to prove the rule. Should, therefore, the good citizens of Worcester be so plenteously, so nicely, and so economically supplied, as to leave no cause for desiring better, let them rejoice—they have much for which to be thankful; let them avow it, too, as an example to all other communities—and, above all, to those that in the aggregate form the two or three millions of inhabitants in the metropolis! Here, however, there can be no mistake: the City cries aloud! Westminster wails; the Tower Hamlets threaten; Finsbury grows furious; Marylebone mutters deeply; Bermondsey bewails; Lambeth is filled with lamentation; Southwark is up and stirring! From every quarter comes the undeniable demand for water, as if men never thirsted before;—as if, for the first time, they had been taught that "Cleanliness is next to godliness;—as if, until now, they knew not that happiness is scarcely separable from health, whilst no comfort can be felt without it—that health cannot exist without cleanliness—and that water is, therefore, as necessary for every personal and domestic appliance, as it is indispensable to support existence. Accum, the chemist, left at least one household discovery behind him. He told us, "There is death in the pot;" and enumerated, as evidence, the various destructive chemical *materia* to be found in each article of food, simple or luxurious, that had undergone the process of manufacture. But he forgot the water! There *is* "death in the pot," indeed!—

> "The *sinful* Thames," to vileat use applied,
> Flows, now, a *slimy, poison-laden tide*;
> Filter'd, at best a fetid draught supplies,
> And who *unfilter'd* drinks it, surely dies!
> Certain, though not so swift, as warfare's slaughter;
> Save us, ye wealthy! then, from "*Death by Water!*"

Venturing thus to epitomise, in rhyme, the chief reason that prevails in London for the establishing of new water companies, we will anticipate the metropolitan press by announcing that provision is making for an abundant supply of water to the inhabitants of the southern districts, pure, cheap, and without intermission. The stream from which it will be taken has been again and again recommended for such a purpose by the highest chemical and engineering authorities, and is capable of affording upwards of 27,000,000 gallons a day, at high service, to districts now stinted to a low service of 6,000,000. Besides this project, for the south, there are three or four more or less advanced for the north of London; and it will not surprise us to find that 2,000,000*l.* or 3,000,000*l.* of the surplus capital of the country will thus find very *profitable* as well as praiseworthy employment.—*Burrowe's Worcester Journal.*

Married,—At Ryton, Northumberland, on the 3d inst., William, eldest son of George Forster, Esq., manager of the Derwent Iron-Works, to Alice, third daughter of R. Marshall, Esq., Greaside.

FOREIGN INTELLIGENCE.

CALIFORNIA.—From the latest advices from San Francisco, it appears that at length something like order and civilization are being again established at this city; municipal authorities had been appointed for the government of the town according to the Mexican system, the principal officer being the Alcalde, who acts as judge in civil as well as criminal cases, all of which are tried by a jury: so that at present a little rude justice is tolerably fairly executed, and the mere fact of having a court of justice to appeal to, is felt as a boon, and tends to establish confidence. In the interior, at the new town of Stockton, on the San Joaquin river, two villians, long notorious for the brutality and dishonesty of their characters, were tried, found guilty, and summarily hung. The examples have had a good effect, and it is said that American rowdyism, or blackguardism, is pretty well extinguished. An over supply of goods, which continues to increase, places the market in an unsatisfactory state. This over supply is not confined to San Francisco, the emporium of the trade of California. The principal cities of the interior, that of Sacramento on the river of that name, and Stockton on the San Joaquin, are also greatly overstocked, and goods are selling at auction at both those places at as cheap rates as they can be bought in San Francisco, and, of course, at ruinous rates to the unfortunate shippers. The number of vessels which arrived during the last month, from the 1st to the 30th of August inclusive, was 114 of all nations. These 114 vessels brought 5472 passengers, of which number 121 were women. At the date of last advices from Panama, there were about 600 persons at that place, waiting for vessels to bring them to this port. Among the late emigrants are about 100 Chinese carpenters, who, since their arrival, are engaged entirely in the erection of houses brought in frame from China. These houses are rather slight, but so much cheaper than others that they have met with a ready sale. A Chinese house, 12 feet by 24 feet, costs, put up (the shell or frame only), $1400. The town is becoming studded with these Chinese buildings, which, notwithstanding an attempt to make them look like American houses, have a character of their own, by which they are easily known. The place is becoming studded with artisans of all kinds. Workers in gold, silver, brass, iron, and tin, are showing themselves everywhere. About 9000 emigrants have arrived in the gold region across the Rocky Mountains. They made their descent principally upon the Sacramento. San Francisco continues to increase as if by magic, and, with the exception of London, or probably Liverpool, the busiest place in the world. The geological strata of the richest of the gold districts in the valley of the Sacramento, from general report, appear to be talcsose slate, occasionally interspersed with trap-rock and serpentine. This talc-slate formation contains veins of quartz, from an eighth of an inch to many yards in width, and in this quartz the gold exists. The powerful currents of water of former eras have abraded these veins, and formed enormous ravines, carrying the debris into the valley, and while the gold, from its specific gravity, was deposited, the lighter earthy portions were carried out to the great rivers. It is believed that iron ores, chrome, and other useful minerals will be found, and beautiful roofing slate is to be had in any quantity, and limestone at no great distance.

A LIVER COMPLAINT CURED BY HOLLOWAY'S PILLS.—Extract of a letter from John McLean Ferguson, Esq., dated Melbourne, Port Philip, May 9, 1849.—To Professor Holloway: Sir,—I had been afflicted nearly two years with the liver complaint, accompanied with flying pains in my shoulders, dimness of sight, and difficulty of breathing. After spending upwards of 30l. in medicines, without finding any relief, I was induced to try your pills, and by their use, and strict attention to the prescribed regimen, I am effectually cured. Grateful for the same, I publish this statement, in the hope that others so afflicted may have recourse to your invaluable medicine, and thereby derive similar benefit.—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand, London. 32

ON NERVOUS DEBILITY AND GENERATIVE DISEASES.

Just published, the fortieth thousand, an improved edition, revised and corrected, 190 pages, price 2s., in a sealed envelope, or forwarded, post-paid, by the Author, to any address, secure from observation, for 2s. 6d., in postage stamps, illustrated with numerous anatomical coloured engravings, &c.

MANHOOD: the CAUSES of its PREMATURE DECLINE, with plain directions for its perfect restoration. A Medical Essay on those diseases of the Generative Organs, emanating from solitary and sedentary habits, indiscriminate excesses, the effects of climate, and infection, &c., addressed to the sufferer in youth, manhood, and old age; with practical remarks on marriage, the treatment and cure of nervous and mental debility, impotency, syphilis, and other urino-genital diseases, by which even the most shattered constitution may be restored, and reach the full period of life allotted to man. The whole illustrated with numerous anatomical engravings on steel, in colour, explaining the various functions, secretions, and structures of the reproductive organs in health and disease; with instructions for private correspondence, cases, &c.—By J. L. CURTIS, consulting surgeon, 15, Albermarle-street, Piccadilly, London. 32

REVIEWS OF THE WORK.

We feel no hesitation in saying, that there is no member of society by whom the book will not be found useful—whether such person hold the relation of a parent, preceptor, or a clergyman.—*Sun*, Evening Paper.

J. L. Curtis, On Manhood, and the Causes of its Premature Decline; with Plain Directions for its Perfect Restoration.—[Strange, Paternoster-row.]—This is a book replete with valuable advice and information. It developes the fearful shoals on which a large proportion of human happiness is wrecked, and furnishes a chart by which they may be avoided and escaped. Fortunate for a country would it be, did its youth put into practice the philanthropic and scientific maxims here laid down. One cause of matrimonial misery might then be banished from our land, and the race of the enervate be succeeded by a renewal of the hardy vigorous spirits of the olden time.—*United Kingdom Magazine.*

Manhood: by J. L. Curtis and Co.—Their long experience and reputation in the treatment of these painful diseases is the patient's guarantee, and well deserves for the work its immense circulation.—*Era.*

Manhood: a medical work.—To the gay and thoughtless we trust this little work will serve as a beacon to warn them of the danger attendant upon the too rash indulgence of their passions—whilst to some it may serve as a monitor in the hour of temptation, and to the afflicted as a sure guide to health.—*Chronicle.*

Published by the author, and may be had at his residence; sold also by Strange, 21, Paternoster-row, London; Heywood, Oldham-street, Manchester; Howell, 16, Church-street, Liverpool; Robinson, 11, Greenside-street, Edinburgh; Campbell, chemist, 146, Argyle-street, Glasgow; Berry and Co., Capel-street, Dublin; and by all booksellers.

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PART THE FIRST treats of the anatomy and physiology of the reproductive organs, and is illustrated by six coloured engravings.—PART THE SECOND treats of the consequences resulting from excessive indulgence, and their lamentable effects on the system, producing mental and bodily weakness, nervous excitement, and generative incapacity; it is illustrated by three explanatory engravings.—PART THE THIRD treats of the diseases resulting from infection, either in the primary or secondary form, and contains explicit directions for their treatment. This section is illustrated by 17 coloured engravings.—PART THE FOURTH contains a prescription for the prevention of disease by a simple application, by which the danger of infection is obviated. This important part of the work should not escape the reader's notice.—PART THE FIFTH is devoted to the consideration of marriage and its duties. The causes of unproductive unions are also considered, and the whole subject critically and philosophically inquired into.

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The Metallurgical Treatment of Ores.

By JOHN MITCHELL, Esq., F.C.S., author of *A Manual of Practical Assaying*, &c. &c.

No. XXXIV.—[*Continued from October 20.*]

The heat disengaged by half a volume of vapour of carbon, burning in the furnace into carbonic acid, is represented by 7072 units. In the boshes, the carbonic acid thus formed combines with another half volume of carbon vapour, and renders 4395 units of sensible heat latent. If the very feeble calorific effects produced during the reduction of the ores by the combustible gases be neglected, there is no other production of heat in the furnace. The combustible gases burn to sheer loss from the furnace top, disengaging 11,267 units of heat, or very nearly double that which is rendered effective in the furnace itself. In a great number of works, however, this source of heat is employed, as will be explained hereafter. The above results have been obtained, as before stated, from a furnace charged with charcoal; we will now compare them with those obtained from a coke-fed furnace.

The gas from the combustion of coke, taken about 7 inches above the tuyère, contained traces of sulphuretted hydrogen; moreover, a greater amount of heat is developed in a coke than in a charcoal furnace. In a furnace charged with coke the ascending gaseous column undergoes the same modification as in a charcoal furnace; but as coke resists the action of oxygen much longer than charcoal, and as it decomposes carbonic acid more slowly into oxide of carbon, the changes in the composition of the gaseous column are not so rapid, and carbonic acid is found in the gas near the tuyère, which is not the case in a charcoal furnace. These circumstances explain why it is necessary that a furnace fed with coke should be higher than one fed with charcoal.

The following are some analyses of the gases obtained from a coke furnace—they are also by Ebelmen:—

Gas from near the Tuyère.—Carbonic acid, 8·11; carbonic oxide, 16·53; hydrogen, 9·26; nitrogen, 75·10 = 100·00.

Gas from about One Foot above the Tuyère.—Carbonic acid, 0·16; carbonic oxide. 36·15; hydrogen, 0·99; nitrogen, 62·70 = 100·00.

Gas from Top of the Boshes.—Carbonic acid, 1·70; carbonic oxide, 34·01; hydrogen, 1·35; nitrogen, 64·47 = 100·00.

Gas from about the Half of the Upper Internal Cavity.—Carbonic acid, 0·68; carbonic oxide, 35·12; hydrogen, 1·48; nitrogen, 62·72 = 100·00.

Gas from the Top of the Upper Internal Cavity (Throat).—Carbonic acid, 7·15; carbonic oxide, 28·87; hydrogen, 2·01; nitrogen, 62·47 = 100·00.

From these analyses it may be seen that the ascending column, when at the boshes, contains but little carbonic acid, and that the oxygen of the carbonic oxide is to the nitrogen in the same proportion as in atmospheric air, which proves that the ore of the descending column has lost all its oxygen on its arrival at the upper part of the boshes, for otherwise the oxygen of the oxide of carbon would be to the nitrogen in a greater proportion than in air, so that the reducing action takes place in the upper part of the internal cavity; hence the large quantity of carbonic acid passing off from the furnace top. The descending column, therefore, is gradually deprived of its water, carbonic acid, and oxygen; it is then near the lower part of the boshes. The metallic iron being then in but a very slightly oxidating atmosphere, and at a very high temperature, absorbs carbon and becomes cast-iron. A small quantity of silicic acid, as well as lime (and the other earthy bases), is reduced by contact at once with highly heated metallic iron and carbon, and the metallic substances so produced alloy with the iron. A little lower down in the furnace the cast-iron and earthy matters enter into fusion (the latter forming a variety of silicates) and fall into the hearth, where they separate, by reason of their different densities.

Calcination of Iron Ores.—Iron ores are generally accompanied by silicic acid; and when this is absent, it must be added, in order to determine the fusion of certain earthy matters, which are generally found with the oxide of iron as existing in the ore. As already stated in a previous paper, silicic acid possesses the property of forming, with protoxide of iron, a silicate which cannot be reduced by carbonaceous matters—so that the greater quantity of this silicate formed during the process of reduction, the smaller will be the yield of metal. It is, therefore, essential to prevent, if possible, the formation of any of the compounds in question; and, among the means employed, calcination is not the least important. During calcination the mine loses water, carbonic acid, and all the volatile matters it may contain; it also becomes porous, which allows it to be more freely permeated by the reducing gases of the blast furnace, so that the iron is reduced to a metallic state long before silicates can be formed; and the metal already deoxidised cannot combine with silicic acid, more especially in the presence of powerful bases, such as lime, magnesia, and alumina. It may be here mentioned, that it is highly improper to calcine mine containing sulphuret of iron, sulphuret of copper, or any other sulphuret, with that free from such compounds; for the sulphuric acid formed during the operation would defile the whole mass, and the iron produced be inferior in quality. The calcination of iron-stone much resembles the burning of limestone, and the same processes succeed equally well with both substances, so that this operation may either be performed in heaps freely exposed to the air, in a walled enclosure, or in kilns. In the first process, a piece of ground is properly levelled, and a layer of coal, equal in area to the intended area of the roasting heap, is spread out; on this a layer of mine, then a layer of coal, and so on alternately, until the heap is judged of sufficient size. Its length is generally very much greater than its breadth. The operation of calcination is commenced by setting fire to one end of the pile, and then allowing it to burn out. The thickness of the layers depends on the quality of the fuel, and the degree of heat the mine can support without partial fusion. As just stated, the roasting is sometimes carried on in spaces enclosed by low walls. The disposition of the heap is as above; but there is a considerable advantage in this method, as the heat is spread more evenly over the whole roasting mass, so that there is not so much fear of vitrifaction, or of imperfect calcination; it also effects a saving in fuel. In the last method, or by means of kilns, the operation is continuous, and conducted exactly in the same manner as lime burning.

On the Preparation of Metallic Iron.—It has already been shown that the oxides of iron are readily and completely reduced by carbonic oxide, and from this it might be judged that the preparation of metallic iron would be a matter of no great difficulty; but it is otherwise. In the working of iron ores, if the furnace be properly constructed, and the manager supplies the proper amount of fuel and mine, the reduction of the oxide of iron present is an easy matter; but, when reduced, it is still intimately mixed with the matrix or gangue of the mine, so that its particles cannot come together. If the gangue were very fusible, it would be sufficient to heat the ore to that temperature at which it became liquid. A spongy metallic mass of iron would remain, which could either be hammered or rolled, to express the excess of cinder, the particles of iron would unite, and malleable iron result. But if the gangue were difficultly fusible, or fusible only at the melting point of iron, then the latter, in contact with carbonaceous matter, would change into cast-iron, so that we should no longer have malleable but cast metal.

Now, the ordinary matrix of iron ore is clay or quartzose matter—that is to say, two very nearly infusible substances. Their fusion may be effected by two methods. If very rich mine be employed, and it be the object to produce malleable iron in a direct manner, the ore is heated in contact with charcoal; the gangue then combines with a portion of oxide of iron, which has escaped reduction, and a very fusible double silicate of alumina and protoxide of iron results. There is, consequently, no necessity to employ a very high temperature, so that the metal does not become cast-iron, and it only remains to express the slag or cinder by percussion or compression. But the loss of iron must necessarily be very great when the mine contains much gangue, so that this process can only be employed with very rich minerals. If it be wished, on the contrary, to completely extract the metal from the mine, it is necessary to render the silicate of alumina fusible by presenting to it some other base than protoxide of iron, and the only base which can be economically employed is lime; but the double silicate of lime and alumina is much less fusible than the silicate of alumina and iron, consequently a very much higher temperature must be employed; the iron becomes cast metal, which liquifies at the same time as the double silicate—slag or cinder. These two methods, therefore, give very different results. The first is employed but in few localities, requires very rich pure mine, and occasions a considerable loss of fuel. It is known under the name of the Catalan method, and is used in the Pyrenees, Corsica, &c.

Treatment of Iron Ores by the Catalan Method.—The Catalan forge consists of a kind of crucible in the form of a quadrangular cavity, is generally about 28 inches deep, and built against the wall of the mill. It is formed in a mass of masonry, composed of dry stones, cemented with clay. The part of this building occupied by the crucible does not rest immediately on the ground, but on several small stone arches, which prevent moisture from entering the crucible, and thus deranging the working. Above these arches is a layer of forge-slag and clay, which is covered by a block of granite, forming the bottom or hearth of the crucible. Above the stone bottom rise the four lateral faces. The blast employed is produced by the water bellows. The hammer is worked also by water power, the head weighing about 10 cwts. The following is the *modus operandi*:—It must be supposed that a mass of iron has just been removed from the furnace to the hammer, and that the former is now ready for recharging. For this end the incandescent charcoal is removed from the crucible, and the adhering scoria detached from the bottom and sides, the burning coals are returned to the furnace, which is filled just to the level of the tuyère. A workman then separates the interior of the furnace into two compartments, by means of a shovel, placed vertically and parallel to the tuyère side of the furnace, so that the compartment between the tuyère and the shovel is twice the size of that on the opposite side of the shovel. Other workmen fill the larger space with charcoal, and the smaller with mine, about the size of nuts, so that two walls, as it were, are formed, one of charcoal and the other of ore. The surface of the ore is then covered with a well-pressed layer of small charcoal, moistened with water. When the charge is thus made, the blast may be commenced, feebly at first, and then gradually augmented. The ore is thus gradually reduced. In proportion as the charcoal is consumed more is added, and it is sprinkled over with a quantity of the ore in tolerably fine powder, and that it may not fall too rapidly through the interstices of the charcoal, it is moistened with water. Under the influence of the air thrown into the furnace by the tuyère, the charcoal is converted in the space near the tuyère into carbonic acid; but further off the carbonic acid is decomposed into carbonic oxide. The greater portion of this carbonic oxide is obliged to pass through the mine, which has already acquired a very considerable temperature, reducing a portion of the oxide of iron to the state of metallic iron; but the whole of the oxide of iron is not reduced—a portion remains in the state of protoxide of iron, and combines with the gangue of the ore, forming a very fusible multiple silicate. A great portion of this silicate filters through the mass, and forms a fluid portion at the bottom of the crucible. This is occasionally allowed to run off, by opening a small tap hole. At the end of about two hours the finely-powdered ore, which has descended with the fuel, has given a certain amount of iron, which is formed at the bottom of the crucible; the workman then commences to collect it in the form of a bloom. The blast is increased, and, by carefully plunging a rod between the ore and the front part of the furnace, he successively collects the mine that seems the best prepared; at the same time, the charging of fine ore and charcoal goes on more rapidly. About five hours after the commencement of the operation, the mine has completely descended in the crucible, and the workman collects with a rod all the fragments of spongy iron, by passing it in all directions throughout the furnace. When thus collected, it is submitted to the hammer. The whole of the operation lasts about six hours, and from 300 to 330 lbs. of malleable iron are produced from about 1000 lbs. of ore and ½ ton of charcoal.

[*To be continued in next week's Journal.*]

VENTILATION OF COLLIERIES.—We have received from our old correspondent, Mr. A. T. J. Martin, now a resident in South Australia, a description of an hydraulic blast wheel for colliery ventilation, designed by him as long since as 1835. As the subject is now one of such general interest we cheerfully insert it, which we think may be well understood without a diagram. The top of the pit is covered by a segment of a hollow sphere in connection with a horizontal cylinder at surface adjoining; within this cylinder works a screw or inclined plane, wound round a shaft half immersed in water, connected outside with a drum or pulley to be worked by the power of the engine. This screw put in motion, the passage of the air being cut off by the water, the contents of the shaft must pass through its coils out to the atmosphere with a rapidity and in quantity proportionate to the size of the apparatus and its velocity. It might be 40 feet in diameter if necessary. By reversing the motion, air might be forced into the mine, and our mechanical readers will perceive numerous modifications by which it might be advantageously applied.

STEEL SPRINGS.—Mr. Smith, of Springfield, Vermont, has patented an improvement in the method of preserving the shape of steel springs in the process of tempering them, represented as "particularly applicable to the manufacture of curved flat springs, for trusses or for various other articles—1. The process, consisting of hardening the spring in the usual manner, when off the mould.—2. In drawing the temper (it being still off the mould), to such extent as to enable me to apply it to the mould without danger of breaking it while so doing.—3. In clamping said spring to a mould, and plunging it and the mould so clamped together into a bath of melted lead, or other suitable metal, or material or materials in a fluid state, and raised to the temperature necessary to produce the desired effect of preserving the shape of the spring, or that given to it by the mould."

THE GOLD MINES OF SIBERIA.—There are ancient legends of a land in the north-east, in which griffins guard immense heaps of gold. These legends are by no means fables. All the eastern declivities of all the mountains from the Ural to Kamschatka end in valleys of river sand, and a handful of that sand contains more or less of gold. But there are places where fabulous riches are heaped up. The official returns of the year 1843, show that in that year the quantity of gold found amounted to 480 cwts.; but the real amount of the gold which was found is not less than 700 cwts.—that is to say, double of what is annually gained in all the mines on the face of the earth. And yet up to the present, only that gold has been found which the floods brought down, and we may ask, where is the stock which yields such splendid crumbs and leavings? Do the griffins still guard it for a bolder and luckier generation than ours? —*Geheime Regierungsrath.*

ABERDEEN RAILWAY.—The directors have intimated to the shareholders their intention to apply to Parliament in the ensuing session for authority to increase the capital. They state that the necessity for an augmentation of the capital does not arise from any unforeseen increase in the cost of the undertaking, but in consequence of its being found advisable for the company to obtain the necessary rolling stock, for working the line. Had they been able to effect an arrangement on satisfactory terms for working the line an increase of the capital might not have been required. It has been found that unless the company supply their own working stock no contract would be undertaken by any person unless on terms disadvantageous to the shareholders. The line is now open to within 12 miles of Aberdeen, and the directors have contracted for a supply of additional working plant to such an extent as is considered necessary for accommodating the traffic. They hope shortly to be able to announce the further opening of the line for traffic to within six miles of Aberdeen.

CALEDONIAN RAILWAY.—It appears from a letter addressed by Mr. M'Micking to Mr. Glyn, that the directors of this company have made a proposal to the directors of the London and North-Western Company to transfer to them the working stock of the Caledonian Company, with the view of obtaining an advance of money thereon, and at the same time to enter into an agreement with the London and North-Western Company to work the line; that the money sought to be borrowed is to meet certain bills, and other personal obligations not under the company's seal, and not contracted in a manner necessary to render them valid and binding upon the company.

NORTH STAFFORDSHIRE RAILWAY.—Traffic return for the month of Sept.:—By gross receipts of canal and railway, 21,085*l.* 19*s.* 2*d.*—To working expenses, canal carrying, limestone getting, and depreciation fund, 12,740*l.* 8*s.* 5*d.*; to interest on debentures and canal shares, 6575*l.*; to estimated balance available for dividend on share capital, 1770*l.* 10*s.* 9*d.*—21,085*l.* 19*s.* 2*d.*

OPENING OF THE NORWICH EXTENSION OF THE EASTERN UNION.—This company's extension into Norwich was opened on Wednesday, with considerable ceremony, by the directors and shareholders resident in the various localities. At half-past 11 o'clock a special train proceeded from the Ipswich terminus, having left London at 10 minutes past 8, and Colchester at 45 minutes past 10, conveying the directors and shareholders over the 31 miles, the length of the newly opened extension from Ipswich to Norwich, and arriving at the station in the latter city at about 1 o'clock. A train from Bury St. Edmund's at 12 joined in with the special train at the Haughley junction. In the evening there was a public dinner of the citizens of Norwich in St. Andrew's-hall, in celebration of the event. The line is expected to be of great advantage in developing the agricultural and commercial interests of the East Union districts. By it the distance from Norwich to the metropolis will, as compared with the route *vid* Cambridge, be reduced several miles.

THE GREAT WESTERN FISHERIES COMPANY.—The managers of this enterprising company have, so far, had no reason to regret the reception of their project in Ireland, and there really seems to be a prospect of beneficial results accruing from their operations. The company's agents have taken three islands, the property of the Marquis of Sligo, and I understand that fisheries will be immediately established at those points. In addition to this favourable beginning, I learn that a wealthy landed proprietor, whose estates border the Atlantic, is so well pleased with the undertaking that he has actually offered to invest in it a large portion of his disposable property.

ACCIDENTS.

Dalmellington.—A great part of the coal-pit, known by the name of No. 1, about half-a-mile from the village of Dalmellington, fell in, on Tuesday night. It appeared, on examination, that a great part of the bog, to the extent of nearly half-an-acre, had sunk, a little below the junction of the town and Cumnock burns—the waters of both running in and filling up the pit. It happened, however, that only two men were in the pit—one of them belonging to Dalmellington, the other living at Craigmark. The two men have not yet been found. On Wednesday, workmen were busy trying to turn the water off, which lay so deep around the mouth of the pit, that boats had to be put on. There is no hope of the men being got out alive.—*Ayr Advertiser.*

Merthyr.—As Evan Owen was at work at a pit near Plymouth Works, a stage upon which he was standing gave way, and he fell upon his head. He was taken home, and seemed recovering for a day or two, but became delirious, and died soon after.——As David Rees, a haulier, was working near the Dyffryn, he was knocked down, when the trains passed over his thighs and broke them. He was taken home, and lingered for some days in great pain, but eventually died.

Ding Dong Mine.—A serious accident happened to a lad 12 years old, named J. Orchard. It appears that by some means his frock became entangled in the machinery, and he was thrown with great violence to the ground, one of his arms being severely fractured, and his face much cut. Other, and more serious injuries would have been inflicted had not, most fortunately, his frock given way. He was immediately conveyed to his father's residence, at Madron Church Town, where medical aid was in attendance, and the poor lad lies in a precarious state.

Dudley.—Samuel Atherley was killed by a fall of rubbish down a pit at the colliery of the New British Iron Company.

Bilston.—As John Clay, 12 years of age, an apprentice to a miner, who worked in a coal-pit at Parkfield Colliery, was walking along the gateroad with two or three other boys, for the purpose of going up the pit, about 2 or 3 cwts. of coal fell from the roof, and nearly covered his body. The coal was removed as speedily as possible, but the deceased had received several cuts and fractures, and was quite dead.

Aberavon.—R. Thomas was suffocated by entering a part of the mine where it was known that foul air had accumulated.

Wall's-End.—The large boiler attached to the engine of the Church Pit, burst on Thursday with a fearful crash, and was carried to a considerable height into the air; fortunately no person being near at the time, no loss of life occurred.

THORNEYCROFT'S PATENT RAILWAY AXLES, RAILS, AND TYRES.

RAILWAY TYRE.—Section No. 1, Half Size.

The middle, or wearing, part of this tyre is composed of chrystaline charcoal iron, the hardest and soundest iron made. The outward edges are made from a mixture of India charcoal pig with the toughest fibrous iron —the whole made upon an improved principle into one homogenous mass.

These charcoal tyres are warranted better and more durable than any tyres made in England.

Price—£15 per ton net at the works, up to 3¼ cwts. each.

RAILWAY TYRE.—Section No. 2, Half Size.

The middle, or wearing, part of this tyre is composed of the best refined chrystaline puddled iron.

The outward edges are of the best No. 3 fibrous iron, and put together upon an improved principle into one homogenous mass.

These tyres are warranted quite equal to any made in Staffordshire.

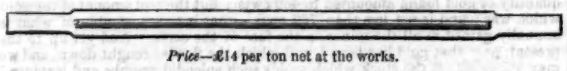
Price—£10 10s. per ton net at the works, up to 3¼ cwts. each.

BEST STAFFORDSHIRE TYRES—£8 10s. per ton at the works, up to 3 cwts. each.

Fig. 1.

SECTION OF BRIGG'S PATENT COMPOUND AXLE.

Scale ½ inch to a foot: parallel axle.

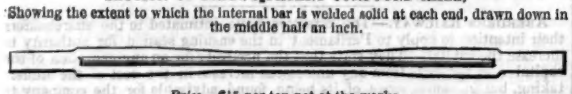


Price—£14 per ton net at the works.

Fig. 2.

SECTION OF BRIGG'S PATENT COMPOUND AXLE,

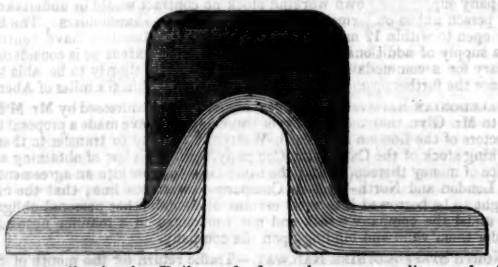
Showing the extent to which the internal bar is welded solid at each end, drawn down in the middle half an inch.



Price—£15 per ton net at the works.

PATENT ANTILAMINATING CHARCOAL RAIL.—Section No. 1, Half Size.

Price—£10 per ton net at the works.



Patent Antilaminating Rails, made from the same quality as the best S & B iron. *Price*—£7 10s. per ton net at the works.

The upper, or wearing, part of these two sections of rails is made from antilaminating charcoal iron, much harder than any other iron, perfectly free from lamina. The under, or fibrous, part from best No. 3 puddled iron.

PATENT ANTILAMINATING CHARCOAL RAIL.—Section No. 2, Half Size.

Price—£10 per ton net at the works.

Patent Antilaminating Rails, made from the same quality as the best S & B iron. *Price*—£7 10s. per ton net at the works.

Rails of the same sections are made from puddled iron, quite free from lamina in the wearing part, but soft and less durable than charcoal rails.

This principle is applicable to any kind of rails.

I beg to inform the railway public, that the machinery for testing the strength of axles, and the strength and soundness of the tyres, is now ready; and I offer it to the public without any charge for its use, to try any one's make of axles and tyres they may think proper. A machine has been designed, and is now making by Messrs. Fox, Henderson, and Co., for proving the quality and durability of tyres and rails by actual wear and tear, the same as when at work on a railway, at any speed you like. The name of the designer is, I trust, a sufficient guarantee for its efficiency; in fact, it will be so true a test, that it must prove satisfactory to the most fastidious mind; and, so soon as it is completed, it shall be offered to the public, on the same terms as the testing machine above-mentioned.

Shrubbery Iron-Works, Wolverhampton. G. B. Thorneycroft.

THE PATENT ANTILAMINATING CHARCOAL & PUDDLED RAILS—REPORT.

TO MESSRS. G. B. THORNEYCROFT AND CO.

Gentlemen,—Agreeable to your request—viz.: that I should examine and report upon the present condition of a quantity of rails manufactured by you, and laid down on the line of the Great Western Railway—I have to state, as a preliminary, that having ascertained the exact position on the line on which your rails were laid (the largest quantity on the main line, in close proximity to the Paddington station, where the trains are stopped and started; the other quantity, consisting only of two rails, on that part of the line known as the Acton cutting, directly under Churche's Bridge), I had the whole thoroughly cleaned; after which I found there were two descriptions of rails—the one marked T P, which indicates that the rail is what you term a patent antilaminating rail, from the best S & B iron; the other description of rail was marked T C, which intimates that the upper, or wearing part, is made from antilaminating charcoal-iron, the under or fibrous part from best No. 3 puddled iron. On one side of the main line there were 13 rails, marked T P, and 23 rails marked T C; on the other side, and directly opposite to the former, there were 15 rails marked T C, and 19 rails marked T P, the whole were laid quite promiscuosly, without any regard to order, or alteration in point of quality, and that they were all laid down in July and August of the year 1847—so that they have now been 2¼ years subject to the wear and tear of the heaviest railway engines made, and in a situation the most trying in which rails could possibly be placed on the line of the Great Western Railway.

I have now to report that, after a most careful and distinct examination of each rail, I found that all the rails marked T C were perfect in every part, except their upper surface, which was slightly reduced, in consequence of the constant abrasion to which they are subject from the starting and stopping of the trains. During my investigation, I had an opportunity of witnessing one of the heavy engines (I believe about 35 tons weight) backing a train up to the station; the driving-wheels were moving through at least three times the space the train was passing through; the effect on the rails was a bright line of about one inch broad, as if it had been produced by a planing machine. These rails have been subject to this ordeal, oft repeated, every day for 2¼ years; yet there is not the least appearance of lamination, or crushing, nor anything to indicate change from their original state, beyond the wearing down of the upper surface in the manner already stated.

The same remarks apply equally to the rails marked T P, with the exception of 6 rails out of the 32 of that mark; these 6 I found to have had some one piece and others two crushed out of one edge, but still in a condition to last a long time. Those parts of the rails where the crushing had taken place appeared to me to have been induced by the introduction of pieces of cinder into the mass of iron while in process of manufacture—thus preventing the homogenous compact of that part of the rails which had been crushed. There is, however, no appearance of lamination, and little or no visible difference between the present state of the 26 T P rails, which remain whole, and the charcoal rails marked T C, which are all perfect, except that they are not so hard, and a little more worn than the T C rails. I have further to state, that I understand that several rails laid down at the same time as the T P and T C rails, and in immediate connection with them, have long ago been removed as unfit for further use. These rails were shown to me quite worn out; and that some of those now on the line, which have not been there near the length of time that your rails have been, are so weakened by lamination and crushing, that shortly they will have to be replaced by others; and it is worthy of special notice, that your T P and T C rails are only 70 lbs. per yard, while their compeers on the same line (if I may judge from appearance) are considerably heavier.

My next examination was at the Acton cutting, on the two rails laid down there, both of which I found marked T P, which, as before described, are patent antilaminating rails, from the same quality as the best S & B iron; from their lightness of appearance, they presented rather a striking contrast to all the rails in their immediate vicinity. These two rails were laid down in August, 1847, and are now in as perfect condition as when laid down; while large numbers of the rails on each line in that locality show extensive crushing and lamination, which, in a short time, must render them unfit for use; while the two rails just referred to bid fair to stand the wear and tear of many years—in fact, as they do not laminate or crush, they will stand until the iron is worn down so far as to be unable any longer to bear the weight passing over them.

It would not be a difficult task to ascertain the amount of saving which would have been effected on railways, as well on the original cost as on the maintenance of the permanent way, had the directors of the several railways made themselves earlier acquainted with the quality of these antilaminating rails, which after the long and severe trials they have had, and the proofs of their superiority to any rails yet made, at once invite the examination of directors and engineers, that they may satisfy themselves of the unprecedented durability of these rails. It is, therefore, not too much to presume, that now the railway proprietary, and the railway directors especially, having the most incontestible proofs of the durability of the rails made on the antilaminating principle of the T C and T. P rails. that they will in future exercise that care and control over the purchase of those articles, which form so heavy an item of the current expenses on every railway, that by reducing these expenses, public confidence in railway property may be again restored, and railways once more present a safe and profitable investment for capital.

I would here remark, that the rails I refer to, as being in competition with your antilaminating rails, are made by an extra process, at a cost of from 2*l.* to 3*l.* per ton more than the ordinary make of rails; this you can ascertain exactly, as that portion of the rails laid down at the Acton cutting are of the same make as the rails supplied to the Oxford, Worcester, and Wolverhampton Railway Company. It is not possible for me to form an exact opinion of the length of time these antilaminating rails will last, but I have no doubt, from all I have seen, that the T P rails will wear, at least, as long as two or three sets of the present make of rails, and the T C or charcoal rails very much longer than the T P—indeed, nothing but time can determine the durability of these rails. It is quite clear to me, that a railway laid down as under—viz., the permanent way with the rails marked T P, and the stations, crossings, and switches, with the T C or charcoal rails, there would scarcely be an end to their durability, and the saving effected in keeping the permanent way in repair would be immense; besides, the rails would do much lighter than the present laminating rail. I am indebted to the polite assistance of the agents of the company, in affording me facilities for examination, and also for the information I required, but particularly to Mr. Gibson, whose attentions have my best thanks.

Nov, 8. Robert Bowman, Engineer.

Sir,—The defect in the 6 rails referred to arises from the calcined cinder, of which the puddling furnace sides and the bottom is formed, getting into the puddled iron during that process, which defect I can effectually prevent in future. I would here remark, that I had every rail laid down that came from the rolls, in order that if any imperfection existed in the process I might find it out, and this end has been fully answered.

Wolverhampton, Nov. 8. G. B. Thorneycroft.

Damage to a Colliery at Tipton.—At the police-office, on Monday last, Mr. John Walker Turton, Sedgley, coalmaster, attended with Mr. T. M. White, house, solicitor, to support a complaint against John Hughes, and four other persons, labourers, for damage done by them to property connected with the colliery of Mr. Turton, at Prince's End, near Tipton. The circumstances were as follow:—Mr. Turton had been the owner of the colliery since 1832, and during that time had worked it, excepting for the last two years, when it had been discontinued in consequence of the presence of water. It appeared also that the property previously belonged to a Mr. Price, who had worked the colliery, and that no interruption had taken place until within about a year from the present time, when a woman of the name of Beard, who was in court, had made a claim to the property, and had authorised the parties charged to do the damage complained of. The above circumstances, and the amount of damage, were proved by several witnesses. Mr. Hall, of Bilston, appeared for the defendants, and after cross-examining Mr. Turton, submitted that as the injury complained of had been done under a fair and reasonable supposition of right, the magistrates had no jurisdiction. Mr. Hall afterwards examined the claimant to the property, but the defendants were ultimately fined 4*l.* each, or to be committed to prison in default of payment, the bench at the same time observing that the claimant had offered no evidence whatever to show to the court that the defendants had any supposition of a fair or reasonable right to injure and destroy property as they had done.—*Wolverhampton Chronicle.*

STEWART AND CO.'S CAST-IRON PIPE MANUFACTORY.

We had lately the pleasure of visiting the extensive patent cast-iron pipe manufactory of Messrs. D. Y. Stewart and Co., at St. Rollox, where there are at present being manufactured no fewer than 10½ miles of cast-iron pipe, for the Liverpool Corporation Water Works, of which Mr. Hawksley, of Nottingham, is the engineer. The works have been erected exclusively for the manufacture of cast-iron pipes, by a method which has been patented, and applies equally to the moulding and founding, combining the greatest possible strength with the utmost economy of material. We understand, from competent sources, that Messrs. Stewart's pipes have been pronounced superior to any yet produced, and are, consequently, receiving a preference over any other. The improvement discovered by Mr. Stewart applies to the moulding and casting of pipes; and the opening of the company's manufactory in Glasgow has been the means of establishing a branch of industry in this city, hitherto almost exclusively confined to Staffordshire and other English counties, and the preference already given to the invention, bids fair to render this an important branch of manufacture amongst the many for which Glasgow is celebrated.

Previous to Mr. Stewart's discovery it had been found impossible, according to the methods of moulding employed, to prevent irregularity in the thickness of the metal, towards the middle of the tube, a defect which created a great waste of metal, besides proving a source of weakness. The new process is simple and ingenious, and pipes can be produced by it, not only free from the defects formerly so much complained of—that is, quite smooth and regular, of uniform thickness, free from unseemly ridges, and perfectly straight—but at a cheaper rate. On entering the works, which are extensive, one is struck with the busy scene presented. Steam is applied in every department, save that in which manul labour is indispensably necessary, and everything proceeds like clockwork. The situation, also, is peculiarly favourable, being close to the Caledonian line of railway, in connection with which rails have been laid from the works. It is our intention to endeavour to convey to our readers an idea of the process of pipe-casting, as adopted by Messrs. Stewart. The first operation is the moulding. First, the sand is rammed into a metal box, placed in a vertical position, by an ingenious apparatus, having the merit of securing perfect uniformity of density. This accomplished, which occupies about sixteen minutes, the box containing the mould, seated on a small truck, is passed along a line of rails a short distance, where it is received by two men who form wha are termed the faucit or socket, and cover the mould with a black liquid, which gives it a smooth surface, and has the effect of preventing the sand from adhering to the molten iron. The mould is then passed along the rails to the stove, where it undergoes the process of drying by means of heated air. While all this is going on—and in no department are the men a minute idle, so soon as one box is rammed with sand another being at hand to proceed with—on a platform at a different end of the works are a few boys, making the core, or body by which the cavity is produced. The core is formed upon an iron cylinder perforated with holes for the escape of the gases produced during casting, by wrapping round its surface a rope of hay, on the top of which is laid a thin coating of loam, and it is then dried in an appropriate stove. The use of the hay rope will appear afterwards. At this point are the furnaces for melting the iron. After the mould is properly dried, it is passed round to the furnace, and the core having been let down into the mould, which leaves a space of one inch round between it and the mould, that being the thickness of the pipe, the molten metal is poured in, and thus the pipe is cast. Perhaps the most interesting process is the casting. It is really beautiful to witness the bright burning liquid poured into the mould. While making its way around the top of the mould, seeking an entrance to the small holes by which it is admitted, it meets with a slight resistance from the air, producing beautiful corruscations, which flit around the apartment sparkling like stars, and then vanish. In the sides of the box containing the mould are numerous small air escapes, and from these during the process are emitted beautifully bright blue and green lights, presenting a column of four yards in length, and 150 inches in circumference, illuminated with gases of varied hues.

Our readers are no doubt aware that. while cooling, metal undergoes a process of contraction. Now the object of wrapping round the surface of the core, above referred to, a rope of hay, is to prevent adhesion, which is accomplished by the rope burning away, and leaving free the small space which it occupied. The core, through the application of a hydraulic press, is thus the more easily started and raised up with the assistance of a crane. On the removal of the pipes from the mould, it is remarkable to observe their freeness from defects, and their uniform thickness. Any little protuberance having been knocked off, the pipe is subjected to a given water pressure and finished.

At the commencement of this notice we mentioned that the Messrs. Stewart were engaged with an order for the Liverpool Water Company. Each pipe measures 4 yards in length, and is 44 inches in diameter. The quantity of metal in each pipe is 2 tons 13 cwts. We understand that at present there is being produced a ¼ of a mile of pipe weekly, so that it will not take long for the company to accomplish their extensive order of 10½ miles.—*Scottish Guardian.*

Manufacture of Steam-Engines in America.—We were somewhat surprised, a few days since, on examination, to observe what a number of engines are in the course of construction in our city. The greatest activity prevails in most of our large engine establishments, and the value of the work in hand cannot amount to less than $2,000,000 or $3,000,000. At the Allaire Works three very handsome and substantial engines have recently been built, one for the Spanish steam-ship, *Don*, intended for a cruiser on the coast of Cuba by the Spanish Government; one for the new Fulton ferry-boat, *Manhattan*, the largest ferry-boat ever constructed in New York; and one for the steamer, *Gold Hunter*, intended to navigate the various gold bearing rivers of California. The four large boilers of the sea steamer, *Pacific*, have also been finished, and will each weigh over 50 tons of solid iron. The engines and other machinery for the *Antarctic*, another of Collins's line of ocean steamers, also building at the Allaire Works, are advancing rapidly towards completion. The engines will, if anything, be a trifle larger and more powerful than those of the *Pacific*, and with the other machinery will cost $250,000. The whole cost of each steamer of this line is estimated at $600,000. The workmanship and finish, as well as the material used in the construction of these mammoth engines, are all of the very best kind, and we doubt if they can be excelled at the best English or Scotch foundries. At Sector and Co.'s foundry there are in course of construction the engines and machinery for the Ocean steamer *Georgia*, the works of a steamer intended for Lake Erie, the engines for two steamers intended to run on Lake Oneida, and the machinery for one large class steamer to run on Long Island Sound. At the Novelty Works also a large amount of work is on hand, and as many hands are employed as can conveniently work. The engines and other machinery are constructing here for three ocean steam-ships, and there are also large contracts on hand for an extensive sugar refinery at Bristol, a large paper mill at Paterson; and various other similar establishments at the south. Altogether the engine establishments of the city never were in a more prosperous condition, and the work executed will undoubtedly soon be considered, and justly, superior to any manufactured elsewhere, either in Europe or America.—*New York Express*, Oct. 23.

Water.—It is the universal talk in London that water must, every where, be rendered in larger quantities, of purer quality, and at a cheaper rate, than heretofore. If there be any exceptions to the rule, they are unknown to the writer; and if discovered by any one else will only go, after all, to prove the rule. Should, therefore, the good citizens of Worcester be so plenteously, so nicely, and so economically supplied, as to leave no cause for desiring better, let them rejoice—they have much for which to be thankful; let them avow it, too, as an example to all other communities—and, above all, to those that in the aggregate form the two or three millions of inhabitants in the metropolis! Here, however, there can be no mistake: the City cries aloud! Westminster wails; the Tower Hamlets threaten; Finsbury grows furious; Marylebone mutters deeply; Bermondsey bewails; Lambeth is filled with lamentation; Southwark is up and stirring! From every quarter comes the undeniable demand for water, as if men never thirsted before;—as if, for the first time, they had been taught that "Cleanliness is next to godliness;—as if, until now, they knew not that happiness is scarcely separable from health, whilst no comfort can be felt without it—that health cannot exist without cleanliness—and that water is, therefore, as necessary for every personal and domestic appliance, as it is indispensable to support existence. Accum, the chemist, left at least one household discovery behind him. He told us, "There is death in the pot;" and enumerated, as evidence, the various destructive chemical *materia* to be found in each article of food, simple or luxurious, that had undergone the process of manufacture. But he forgot the water! There *is* "death in the pot," indeed!—

> "The *silver* Thames," to vilest use applied,
> Flows, now, a *slimy, poison-laden tide*;
> Filter'd, at best a foetid draught supplies,
> And who *unfilter'd* drinks it, surely dies!
> Certain, though not so swift, as warfare's slaughter;
> Save us, ye wealthy! then, from "*Death by Water!*"

Venturing thus to epitomise, in rhyme, the chief reason that prevails in London for the establishing of new water companies, we will anticipate the metropolitan press by announcing that provision is making for an abundant supply of water to the inhabitants of the southern districts, pure, cheap, and without intermission. The stream from which it will be taken has been again and again recommended for such a purpose by the highest chemical and engineering authorities, and is capable of affording upwards of 27,000,000 gallons a day, at high service, to districts now stinted to a low service of 6,000,000. Besides this project, for the south, there are three or four more or less advanced for the north of London; and it will not surprise us to find that 2,000,000*l.* or 3,000,000*l.* of the surplus capital of the country will thus find very *profitable* as well as praiseworthy employment.—*Burrowe's Worcester Journal.*

Married,—At Ryton, Northumberland, on the 3d inst., William, eldest son of George Forster, Esq., manager of the Derwent Iron-Works, to Alice, third daughter of R. Marshall, Esq., Grearside.

The Compendium of British Mining.

BY J. Y. WATSON, ESQ., F.G.S.

It has been suggested that whilst so large a degree of public attention is turned to Cornish mines, it would materially assist those who seek for them as means of investment or of speculation, if a summary of the rate of dividends paid by each, with a few other particulars in a concise form, were given as a sort of appendix to the general statistical accounts lately published in this edition of the Compendium in your columns.

Those who require to know the names of managers, agents, lords, dates of leases, total returns made, and dividends declared, can obtain the information by referring to previous articles in your Journal, the precise page being referred to under the head of each mine.

Any one remembering the state of mining matters a few years ago, and contrasting them with those of the present day, cannot but be struck with the rapid strides that mining has made in public estimation; and, I repeat, it behoves all who have the interest of Cornwall at heart, not only to uphold legitimate undertakings, but to expose such as are based solely upon fraud.

It is the intention, I believe, of many interested in mining adventure to form an Exchange, so that correct quotations of shares may be obtained, the list weeded of many questionable concerns; and no one admitted into it without indubitable testimony of being properly brought out, and under *bonâ fide* management. This seems a most desirable proceeding; and a committee, who will act fearlessly and honestly, will materially aid in gaining the confidence of the general public towards this great and national branch of commercial enterprise.

DEVON GREAT CONSOLS COPPER MINES.—(For general statistics see *Mining Journal*, Dec. 2, 1848.) In 1024 shares, of 1*l.* paid, price 190*l.* Dividends payable in London bi-monthly, being at the rate of 30*l.* to 35*l.* per share per annum, or rather more than 17 per cent. The dividends already paid this year amount to 28*l.* 10s. per share, and there will be another of about 5*l.* in a few days. The mines are very extensive, have large reserves of ore ground, and, so far as human judgment can forsee, afford good prospects of continuance, and may be considered a steady investment, without yielding, however, the large amount of interest on the price of shares that many others of less extent are paying.

EAST WHEAL ROSE LEAD MINE.—(For general statistics see March 24, 1849.) In 128 shares, price 600*l.* to 650*l.* Dividends payable every two months in Cornwall; rate of dividends about 175*l.* per share per annum, or nearly 30 per cent. The dividends already paid this year amount to 140*l.* per share. East Rose is the largest lead mine in the kingdom, yielding the greatest returns, and having extensive and valuable machinery; mine well managed, and conducted on the Cost-book System.

SOUTH BASSET COPPER AND TIN MINE.—(For general statistics see Feb. 24, 1849.) In 128 shares, price 350*l.* to 360*l.* Dividends paid in Cornwall every two months, and at the rate of 60*l.* per share per annum, or about 18 per cent. The dividends already paid this year amount to 35*l.*, and another will be due in December. The mine is in the richest district in Cornwall, and has, it is reported, very large reserves of ore.

[*To be continued in next week's Mining Journal.*]

Mining Correspondence.

BRITISH MINES.

ALFRED CONSOLS.—We commenced sinking Field's engine-shaft under the 60 fm. level on Wednesday, and find the lode to exceed our expectations, the whole of which is quite 7 ft. wide, and the air-course in the east end of the shaft is 5 ft. wide, and in the west end 2 ft.; this is looking very cheering indeed; I think it yields 8 tons per fathom, worth 36*l.* In order to make all possible speed, the shaftmen are increased from 12 to 16. The ground for the new plunger is all cut, and we shall immediately commence fixing bearers, cistern, &c. The lode in the 60 fm. level, east of engine-shaft, is about 5 ft. wide, all saving work for copper ore, yielding from 20*l.* to 30*l.* worth per fm. The lode in the 50 fm. level, east of engine-shaft, is large, and dredged with copper ore. There is no change in any other part of these mines. We cannot drive the 60 fm. level west for the month, as it would impede the progress of the sinking of the engine-shaft just now.

BARRISTOWN.—The stopes in the bottom of the adit level, west of slide, are producing from 15 cwts. to 1 ton of lead per fm. The lode in the 24 fathom level end, west of engine-shaft, is about 2 feet wide, with a very thin mixture of ore throughout; we have cut a part of this lode in a cross-cut south of Kiln shaft, which has not changed in its character, being composed of iron, blende, and stones of lead. We still continue to drive south to prove it further. The lode cut in the western cross-cut is greatly improved; it is now 2 feet wide, and worth about 5*l.* or 6*l.* per fm. for lead; we have commenced to drive west; also to rise on it; we are also clearing up the old bottoms at the mouth of this cross-cut, which will work well on tribute.

BEDFORD UNITED.—The ground in the engine-shaft continues hard and troublesome, but there is a change taking place, and I hope it will prove to be favourable—the shaft is now sunk 9 fms. under the 403 fm. level. The 103 fm. level, east of the shaft, has been extended 3 fms. 3 in.—the ground is more favourable for driving than for some time past; the same level, east of Burley's winze, has been driven 1 fm. 5 ft. 6 in. the lode in the end is 3 ft. wide, composed of spar, mundic, and yellow ore of a very good quality, and to the extent of 2 tons per fm.; this end is approaching the main shoot of ore, and we expect in the course of a few days to reach it. The end west of Burleys winze has been extended 2 fms. 2 ft.; the lode at present is hard and unproductive, but we expect shortly to get under Crew's winze, in which there is a good productive lode. The men in the shaft, and in these three ends, have been hindered some days in consequence of the water been turned out of the canal, and which supplies our water-wheel. The rise in the 90 fm. level, against Reynolds's winze, has been risen 2 fms. 6 in., and we expect to hole in the course of a day or two—this will lay open very good tribute ground. The lode in the 70 fm. level east has been cut through to the south end; we are now driving by the side of it, the end is very wet, and it is probable we are near a cross-course. The cross-cut in the 47 fm. level has been extended 3 fms. 2 ft. 4 in.; the ground is favourable, and moderately easy for driving. The pitches generally are looking well, and are as productive as usual—the returns being about double the amount of cost.

BRYN-ARIAN.—I do not see any alteration in the appearance of this mine since my last report. The lode in the 10 fm. level, west from the engine-shaft, is 4 ft. wide, with small branches of ore throughout. The lode in the rise, back over this level, east from the shaft, is large, and yielding 15 cwts. of ore per fm. The lode in the winze sinking under the adit level, east from the shaft, is 6 ft. wide, producing 1 ton of ore per fm. The stope back over this level, east from the shaft, produces one ton of ore per fathom; the stope back over this level, west from the shaft, is yielding 10 cwts. of ore per fm. We have suspended the working of the stope in the bottom of the adit level, east from the shaft, until there is a communication made from the winze sinking under the adit level, to meet the rise from the 10 fm. level.

CALLINGTON.—At the north mine, the ground in the 125 fm. level cross-cut is a little more favourable for driving. In the 112 fm. level north we have commenced a rise to communicate with the level above, for the better ventilation of this level, and also for the convenience of working pitches; in the 112 fm. level south the lode will produce 4 cwts. of silver-lead ore per fm. In the 90 fm. level south we are opening moderate tribute ground. Our progress with the new diagonal shaft thus far, sinking below the 80 fm. level, is quite satisactory. The 70 fm. level east, on Kelly Bray lode, will produce from 2 to 3 tons of copper ore per fm., with every prospect of a speedy improvement. At the south mine, the 125 fm. level south will produce 3 cwts. of silver-lead ore per fm. In the 112 fm. level north we are opening moderate tribute ground; the 112 fm. level south will produce 4 cwts. of silver-lead ore per fm. We sampled this day, computed 43 tons, of rich silver-lead ores, samples of which are forwarded to the different smelters as usual.

CARADON UNITED.—The engine-shaft is down 5 fms. below the 50, and have had Morshead's lode in the shaft just 20 fms. in sinking; it is now nearly gone through to the north; the average underlay for this last 20 fms. is only about 6 in. in a fathom; its average width is from 6 to 16 ft., composed of a strong gossan, soft friable spar, iron, prian, portions of mundic, and copper ore. We have now the hard granite rock partly in the bottom of the shaft to the south, which we are obliged to blast. We are still sinking by nine men, at 14*l.* per fm.; we are also driving south in the 50 by two men, at 10*l.* 10s. per fm., to intersect the first two lodes. The first is the tin lode; this we cut 10 fms. under the surface, and had a tolerable good lode of tin. We also cut this lode in the 28, and only had good portions of tin. In the 36 we also intersected this lode, and found it was split into several branches—some from 2 to 10 inches wide, composed of peach, spar, can, and also portions of copper ore, but saw no tin; therefore, I judge it will prove to be a copper lode in depth. I expect we shall cut this lode in the 56 fathom level about 2 fathoms driving more. The next lode to the south of this is what we call the little copper lode; we have only seen this in the 28 fathom level, on which we drove several fms., and found it to be from 8 to 20 in. wide, composed of peach, gossan, quartz, can, and good scores of copper ore; the underlay of these two lodes is north, apparently only a few inches in a fm. I expect we shall cut this lode in about 6 or 7 fms. more drivage in the 50, when I hope to see some considerable improvement, and consider we ought to be driving this 50 cross-cut at least by four men. We have seen several other very promising lodes to the south of these at the surface, and have reason to believe they will prove productive in depth, and trust our shareholders will allow me to put two more men in this cross-cut.

CARTHEW CONSOLS.—At the upper mine, the shaftmen this week have lowered the pump work, in all appearances to the bottom of the sink below the 55 fm. level, but have yet 2 or 3 ft. of stuff to clear up. We have done nothing in clearing the 46 fm. level this week, the men having been engaged in cutting a plat at the middle shaft. The lode in the end, in the 28 fm. level south, looks much as last reported on. At the lower mine, the lode in the adit level here is much improved in its general appearances this week, and the ground continues very good. I trust you will be pleased and satisfied with our tribute setting.

CWM ERPIN.—The stope in the back of the 20 fm. level, from the engine-shaft 40 fms. east, is worth 5*l.* per fm.; ditto, from 20 to 30 fms. east, worth 10*l.* per fm.; ditto, 30 to 40 fms. east, worth 19*l.* per fm. The winze under the 20 fm. level is worth 12*l.* per fm. The 20 fm. level, east of the whim-shaft, is poor; the same level, east of Roberts's winze, is worth 10*l.* per fm.; the same level, west of ditto, is worth 3*l.* per fm.; the stope in the back, worth 10*l.* per fm.

DEVON AND COURTENAY CONSOLS.—The lode in the winze, sinking in the bottom of the 40 fm. level, continues about 3 ft. wide; in the eastern end of the winze the lode is composed of capels and spar, and in the western end of white iron, spar, and spots of ore. In the stopes in the back of this level the lode is worth 6*l.* per fm. In the 50 fm. level we have intersected the lode both east and west of the cross-course; the lode is 2 ft. wide, underlaying south about 3 ft. in a fathom towards the south lode, which is nearly perpendicular, producing some good stones of yellow ore; the pitches in the back of this level, on the south lode, continue to yield some good work.

EAST CROWNDALE.—Since our last report the middle shaft has improved for tin in sinking; it is now producing good tin work that will pay well for stoping. We hope to sample our tin this week; the copper is about half taken to the quay, and will be completed by the end of this week; it would have been done before this, but for the scarcity of carts.

ESGAIR LLEE.—The north lode in the deep adit, east of the cross-cut, is much the same as last reported, and will yield on an average 10 cwts. of ore per fm. The south lode, in the deep adit, east of the engine-shaft, is poor; we have been putting in an air pipe in the winze this week, therefore we cannot speak of any alteration in the lode. The canuter lode, in the shallow adit, west of Morgan's winze, is much the same as last reported, and will yield on an average from 10 to 12 cwts. of ore per fm. We have during the past week been shoding for the canuter lode, and have found it, and it is looking very promising; the lode is composed of first quality gossan, and is producing some good stones of ore one yard below the surface—I think it advisable to drive east on it, to meet the level now driving west from Morgan's winze; this will open ground that will, I think, pay for working, give us good air, and show us the best place to sink a winze on same.

HEIGNSTON DOWN CONSOLS.—The lode in the 45 fm. level presents indications of improvement, having intersected in the past week some kindly branches, yielding some yellow copper ore, but as yet have not reached the north wall thereof. The 35 fm. level, east of the cross-cut, continues to improve in appearance, being composed of the finest gossan, spar, peach, mundic, and a little copper ore. In the 20 fm. level, west of Hitchins's shaft, we have driven north about 5 feet, and have cut two branches, each of which is about 4 in. wide, producing good stones of copper ore.

HOLMBUSH.—The lode in the 120 fm. level south is 6 ft. wide, composed of soft quartz and stones of lead. The ground in the 120 fm. level cross-cut south, driving towards the flap-jack lode, is very favourable, being set at 3*l.* 5s. per fm., month stent. The lode in the 110 fm. level south is 4 ft. wide, composed of quartz, prian, killas, and stones of lead. The flap-jack lode, in the 100 fm. level, east of the great cross-course, is 4 ft. wide, and will produce 6 tons of copper ore per fm., and is again set to drive by eight men, at 6*l.* per fm. We have sampled a parcel of silver-lead ores, computed 30 tons, to be tendered for on or before the 14th inst., agreeable to circular, &c.

KIRKCUDBRIGHTSHIRE.—The lode in the 62 end west is about 6 ft. wide, yielding 15 cwts. of lead per fm.; the lode in the 62 end east is 15 in. wide, we have had a good branch of ore in this end this week, but it has declined again. We have cut so much water in the 49 end west, as to prevent us from sinking the shaft this week, and we are compelled to suspend it (the end) altogether for awhile, until the ground drains a little. In the 50 end west, going under this, we have a lode 2½ ft. wide, worth 15 cwts. to the fm. We have shipped off a cargo of lead this week for the Holywell market.

LAMHEROOE WHEAL MARIA.—At the engine-shaft we have driven north about 3 fms.—ground not so easy for excavating as last reported; should the lode be hove at 4 fms., we shall have 1 fm. more before we intersect it, not knowing the exact distance of heave; but, judging from the Benny lode, hove by the same cross-course, we find the distance, as above-mentioned, 4 fms.; probably we may exceed a few feet beyond this. Davey's shaft we have opened north in the 50 fm. level about 6 ft.; the distances to intersect the lodes in this shaft can be ascertained by the sketch forwarded.

LEWIS.—The lode in the engine-shaft, sinking below the 70, is 2 feet wide, producing some good stones of tin, in a very favourable strata; the lode in the 70 east is 3½ ft. wide, worth 7*l.* per fathom; the lode in the 70 east of ladder-road winze, on south branch, is small and unproductive; the lode in the 70 east from sump-shaft, on south branch, is yielding some good quality work, driving at 11s. tribute. The 60 east from sump-shaft, on south branch, is worth 14*l.* per fm.; the lode in the 60 east, on Cock's branch, is much the same as when last reported; in the 60 south the ground is still favourable. The 50 east, on south branch, is opening tribute ground; the 50 east from copper ore shaft, on Cock's branch, is worth 5*l.* 10*l.* per fm.; the south lode in the 50 east, from Oak shaft, is 1 ft. wide, producing some good stones of tin. The lode in the 40, east of copper ore shaft, on Cock's branch, is worth 4*l.* 10s. per fm.; the lode in the 40 west of copper ore shaft, on Cock's branch, is worth 5*l.* per fm.

MENDIP HILLS.—You will undoubtedly be as pleased to hear, as I am to inform you, that during the past week we have been visited with a few showers of rain, which has enabled us to again resume operations at Blackmoor dressing floors; I hope we shall now get a sufficient supply of water to carry on our works without any further interruption, the slag stuff which we are at present removing to the floors, being taken from so near the surface, is not very rich in slags, but contains a large quantity of very good slimes. At Ubley, we have this morning commenced working with two washing strakes, and hope also to see these floors in full operation by the latter part of the present week. Charterhouse Valley remains without the least alteration whatever, the beds of stuff being about 14 ft. thick, producing some tolerable good slime and slags. The engineer is still engaged in making the alteration with the blowing apparatus.

SOUTH WALES MINES.—At Bodcall, we have not yet cut the lode in the shallow adit. At Dalwin, the south lode in the deep adit, east of the Rhydnet river, does not yield as much copper as when last reported, but is about the same for lead; the winze is down 10 ft. below the adit, but as yet we have not taken down any lode.

SOUTH WHEAL TRELAWNY.—The engine-shaft is in course of sinking with nine men—sunk below the 40 fm. level. In the 18 fm. level the ground is not quite so favourable as it was last month; also the water is on the increase a little. Things are in a regular course of working order.

TAMAR SILVER-LEAD.—The engine-shaft is sunk 9 fms. 4 ft. below the 190 fm. level, the lode in which is small and poor. In the 190 end the lode is 1 ft. wide, work of a promising character. In the 175 end the lode is 2 ft. wide, orey throughout, producing good stamps work. In the 160 end the lode is 6 in. wide, composed of spokan and ore. In the 145 end the lode is 3½ ft. wide, 18 in. of which is saving work. In the 135 end the lode is disordered by small cross-courses. At the north mine, in the 80 fm. level, the lode is 18 in. wide, yielding work of a moderate quality. In the 70 fm. level the lode is 4 ft. wide, 6 in. of which is producing work of a promising description; in the rise in the back of this level the lode is 2 ft. wide, interspersed with ore, good stamps work. We sampled on Saturday, the 3d inst., computed 88 tons, of rich silver-lead ores, samples of which have been sent to the different purchasers.

TINCROFT.—On Highburrow tin lode, in the 152 fm. level, east of engine-shaft, the lode is 4 ft. wide, worth 16*l.* per fm. In the 142 fm. level, east of Martin's cast shaft, the lode is 3½ ft. wide, worth 14*l.* per fm.; the stopes east of the shaft are worth 18*l.* per fm.; the stopes west of the shaft are also worth 18*l.* per fm. In the 132 fm. level, east of Martin's east shaft, the lode is 4 ft. wide, worth 16*l.* per fm.; the stopes east of the shaft are worth 18*l.* per fm.; the stopes west of the shaft are also worth 18*l.* per fm. In the 120 fm. level, west of engine-shaft, the lode is 4 ft. wide, worth 10*l.* per fm. At North Tincroft, in the engine-shaft sinking below the 100 fm. level, no lode has been taken down since last report. In the 100 fm. level east the lode is 3 ft. wide, worth 10*l.* per fm. for copper; in the west end, same level, the lode is worth 16*l.* per fm. for copper. In the 90 fm. level, east of Willoughby's shaft, the lode is worth 8*l.* per fathom for copper. In the 90 fm. level, west of engine-shaft, the lode is 4 ft. wide, worth 20*l.* per fathom for copper. In the winze sinking west of engine-shaft, below the 80 fm. level, the lode is 2 ft. wide, worth 12*l.* per fm. for copper. In the 100 fm. level, east of Downright shaft, the lode is 3 ft. wide, worth 6*l.* per fm. for tin and copper; the west end, same level, is worth 15*l.* per fm. for copper. In the 80 fm. level west, the lode is 4 ft. wide, worth 9*l.* per fm. In the bottom of this level we are sinking a winze, the lode in which is 3 ft. wide, saving work for tin. In Palmer's shaft, sinking below the 90 fm. level, on East Pool lode, the lode is 4 ft. wide, with spots of ore; in the 90 fm. level west the lode is 3 ft. wide, worth 6*l.* per fm. for copper. In the 80 fm. level west the lode is 3 ft. wide, worth 7*l.* per fm. for copper. The 70 fm. level west is worth 6*l.* per fm. In the 36 fm. level, west of Stainsby's shaft, the lode is 2 ft. wide, with stones of copper ore. In the 24 fm. level west the lode is 1½ ft. wide, of a promising appearance; in the winze sinking below this level the lode is worth 30*l.* per fm. for copper. At Wheal Providence, in the engine-shaft sinking below the 33 fm. level, the lode is 2 ft. wide, but poor.

TRELAWNY.—In the 82 end, north of Phillips's shaft, the lode is 3 ft. wide worth 5*l.* per fm.; in the south end, in this level, the lode is 3½ ft. wide, worth 7*l.* per fm. In the 72 end north the lode is 3 ft. wide, worth 8*l.* per fm.; in the south end, in this level, the lode is 2 ft. wide, worth 9*l.* per fm. The winze under this level we are sinking by the side of the lode. In the 62 end north the lode is 4 ft. wide, worth 14*l.* per fm. In the winze sinking under this level, the lode is 2 ft. wide, worth 9*l.* per fm. In the north winze the lode is 2 ft. wide, worth 8*l.* per fm. Trelawny's shaft has not been sunk much this week, the men having been engaged in taking up water, and making preparation for the winter; but it is now again in regular course of sinking. In the 72 end north the lode is 3 ft. wide, worth 8*l.* per fm.; in the south end, in this level, the lode is 2½ ft. wide, worth 9*l.* per fm. In the 52 end north the lode is 3½ ft. wide, worth 8*l.* per fm. At the north mine, in the 55 fm. level, end of Trehane, there is not yet any alteration. In the 40 end, north of Smith's shaft, the lode is in a disordered state. The stopes throughout the mine are usually productive.

TRELEIGH CONSOLS.—The 125 cross-cut, at Garden's, driving towards the lode. In the 90, west of Garden's, the men have been rising this week against the winze in the 60. In the 80, east of cross-cut, lode 3 ft. wide, worth 5*l.* per fm.; in the 80, west of ditto, lode 2½ ft. wide, worth 22*l.* per fm.; in the 80, west of Garden's, on the south lode, lode 1 ft. wide, with stones of ore; in the winze below the 80, lode 18 in. wide, with stones of ore—we hope to hole this winze in the course of a few days. In the winze below the 70, lode 20 in. wide, with good stones of ore. In the 60, west of Garden's, lode 15 in. wide, with stones of ore. At Wheal Parent, the 40 cross-cut north driving towards ditto lode. The 40 cross-cut south is driving towards the middle lode. In the 30, east of engine-shaft, lode disordered by a branch; in the 30, west of ditto, no lode taken down this week. In the 20, west of ditto, lode is in; winze, with good stones of ore. At the middle lode, the adit east of Nicholson's shaft, lode 20 in. wide, with good stones of ore, and is looking kindly.

WEST WHEAL JEWEL.—The 85 fm. level, west of Williams's cross-course, on Wheal Jewel lode, is unproductive—drove last month 1 fm. 5 ft. 6 in. The 70 fm. level, west of Williams's cross-course, on ditto lode, worth 6*l.* per fm.—drove last month 1 fm. 4 ft. The 47 fm. level, east of Williams's cross-course, on ditto lode, worth 4*l.* per fm.—drove last month, 2 fms. 3 ft. 6 in. The deep adit, west of Williams's cross-course, on ditto lode, unproductive—drove last month 1 fm. 2 ft. The deep adit, west of Tregoning's shaft, on Tolcarne tin lode, is looking more promising for tin—drove last month 1 fm. 2 ft. 6 in. The 12 fm. level, on ditto lode, west of Tregoning's shaft, is unproductive—drove last month 1 fm. 2 ft. 6 in. The shallow adit cross-cut, south from ditto lode, west of Tregoning's shaft—drove last month 1 fm. 4 ft. The 57 fm. level cross-cut, north from Buckingham's lode—drove last month 3 fms. 3 ft. 6 in. The stopes west of Pryor's winze, in the back of the 12 fm. level, on Tolcarne tin lode, worth 12*l.* per fm.; the stopes east of ditto, lode worth 9*l.* per fm. The stopes in the bottom of the 12 fm. level, east of Tregoning's shaft, on ditto lode, worth 28*l.* per fm.; the stopes west of ditto winze, in the bottom of same level, on ditto lode, worth 20*l.* per fm. These stopes are working on tribute.

WHEAL ANDERTON.—The discovery anticipated, as noticed in my report of last week, respecting the lode in the 80 fm. level west, under the winze, is very good; we have not yet cut the north wall, but daily expecting to do it, as the part that carries the tin is full 3 ft. big, very rich work; this being in new ground, and the lode becoming very settled, clear of cross-courses, I have every reason to believe it will produce great quantities of ore. I do not see any material alteration in the other departments operating on since my last report. I shipped for Truro and Charlestown 4 tons 17 cwts. of tin ore yesterday, at 43*l.* 7s. 6d. to 44*l.*, and the second quality at 36*l.* per ton.

WHEAL PENHALE.—In reporting of this mine, it is a source of great pleasure in being able to state that there is a great improvement in the ground in the engine-shaft, which I have just witnessed, and the lode looks very promising indeed. In the north end, in the 20 fm. level, no lode has been taken down this week, whilst in taking down the lode in the south end, in this level, a great improvement is met with; the lode is now yielding beautiful copper, with a small portion of lead. We have removed the men from the south end, in the 10 fm. level, to sink the middle shaft from the adit to it, wherein I find the lode to be very promising indeed, yielding good stones of lead and copper. Our tribute setting I hope you will be satisfied with.

WHEAL VINCENT.—In taking down the lode a few fms. east and west of No. 3 shaft, on the south lode, we have cut a rich bunch of tin, some of which I have sent to W. Wiseman, Esq.; we are now engaged in stamping this work, and I am happy to state it is splendid indeed. The stopes around No. 2 shaft are turning out some very good work for tin; we shall set another pare stoping the beginning of next week. We are getting on as fast as possible with the crusher; when erected it will save great expense of carriage, &c., and the tin being of a large and solid grain, we expect to be able to dress a great deal without the use of the stamps. I have numbered the stones sent; No. 1 was broken from the bottom of the level; the same kind is still holding good in both ends driving. No 2 was broken in the back of the level, all of which not more than 6 fms. deep from surface. In all my experience of mining I never saw a more promising lode; in fact, if it continues as at present in deeper levels, we cannot fail in giving large and lasting dividends. The other small stones of tin were broken between the large stones sent, which is termed by miners quires. Unfortunately for the late adventurers, some of whom have visited the mine, they were misguided by a cross-course, because the agent expected the lode was not hove in the direction it is. I have frequently experienced, that lodes are hove contrary to the guidance of a cross-course; therefore, there can be no blame laid to the agent; perhaps he did not take into consideration that the lode was running in an oblique direction in the side of the hill, and at the same time did not look at the dip of the shelf bearing against the cross-course, which in the granite strata, where porphyry of elvan dykes are found to run, have frequently greater effect on the lode than the rule we are governed by in a clay-slate strata. We have several tons of tin dressed, and in course of dressing, which appear to be of a very good quality. The new lode which I mentioned in my last report, which is 24 fms. further north than our present workings, we have just opened on; it is of a very promising character, and, according to the bearing of the cross-course, would be hove south instead of north; therefore, we can drive to cut it by the same cross-course, which we can drive in very cheap, but we do not intend to do anything here until the mine is further developed. I hope to take down some of the lode in the south engine-shaft next week. The ground in the cross-cut from the engine-shaft in the valley is still favourable, and a great deal of water proceeding from it, and we are frequently intersecting small veins of very promising nature, which carry a little tin, but are yet some distance from the lode.

FOREIGN MINES.

COPIAPO MINES.—The following is the report for July:—

COPPER MINES.—*Checo Mine.*—The 20 fm. level, east of Harman's shaft, has been driven, since last reported on, 8 varas, through very productive ground, the vein being, on an average, about 2½ feet wide, of ore from 30 to 35 per cent., and the lode, up to the 20th inst., had not shown the least indication of decline, either as regards size or quality. The stopes in the back of this level are also looking well—lode about 1 ft. wide, of very good ore. At the 40 fm. level, east of the same shaft, we, in the beginning of the month, came in contact with a slide, which, although it did not heave the lode, as is often the case, yet it divided it completely; and to the east, or over the slide, for it has an inclination, or dip, easterly of 45°, we found the vein split up into branches, and scattered into a diversity of directions; but, by pursuing our way amidst the confusion on the general bearings of the lode, we find the small and scattered branches falling in again; which, in my opinion, will shortly be contained to form a strong, well-regulated, and productive lode. I venture to express this my opinion here with greater confidence than I should, perhaps, on any other mine, from having had so many opportunities of observing the diversity of changes in the aspect of Checo, and endeavouring for years to trace the causes and effects, that I have, in many instances, anticipated pretty correctly the results of our operations, and have been able to draw encouragement and hope from sources that, to a stranger at first sight, would appear little else but despair. At the 20 fm. level, west of the Victoria, we have a pretty vein in the last month, although small, only 6 in. wide. I was quite pleased with its appearance, and the ground about of that character that we have found most congenial to the existence of good ore in this mine. I am in great hopes that it will soon become wider, and continue of the same quality, which is good—about 30 per cent. The stopes in the back of this level are producing some very good ore, and I think, from their present appearance, are likely to improve. We intend commencing a winze in a few days, to sink below the 40 fm. level east of Harman's shaft, where I hope to lay open some ground that will pay well for stoping at some future day. On the whole, I may say that I have not had more pleasure in visiting this mine for years, and Capt. Faull deserves great credit for the orderly manner in which everything is conducted, and particularly for his care and attention in the selection of the ores.

San Pedro Mine.—In this mine we have no alternation that calls for any particular remark. We are driving only one, the 16 fm. level west, which gives a little ore of good quality, but the ground is hard. We have two men stoping in the back of this level, who are breaking some rich ore, sufficient to pay the expenses; and as the ore is very good, and a great change in the lode, becoming larger, I think it prudent to continue both the end and the stopes. These are all the points we have now in operation here.

La Compania Mine.—We have not been able to do any thing in this new and very promising mine since I addressed you last, from the want of mule force to carry materials, provisions, &c., to the mine, nor do I expect until I have dispatched the *Sun*, now being loaded at the port of Copiapo, and which will require about another month to complete her cargo.—Produce at Checo Mine for July, 41 tons; ditto San Pedro, 16 = 57 tons.

SILVER MINES.—*Al Fin Hallada Mine.*—It is with pleasure I have to communicate to you the great improvement that has taken place in this mine. In chiflon, No. 4 (to the south of the pique, or shaft, No. 3, from which we have for some time been breaking out rich ore), we have a splendid bunch of ore, 2 ft. wide. When we commenced in the early part of the month to break down the lode, we had 7 varas, or Spanish yards, desued; and at the upper part the ore was of an ordinary quality, about 100 to 150 marcs per cajon (about 80*l.* per ton), but a vara had not been broken when the vein became very rich—so much so, that from the 7 varas of lode it is estimated we shall have more than 4000 marcs of silver, or 800*l.* The ore produced is about 45 tons, and is now being brought to the city to be amalgamated. The lode still continues its size—say, 2 ft.—and we believe it to be ore of 800 to 1000 marcs per cajon (3 tons). We are now breaking down in No. 3, and in the 10 fm. level north of the same shaft, from which we expect another 4000 marcs by the 4th or 5th proximo; this will be from a larger quantity of ore, calculated at 40 tons—or say, 200*l.* per ton. I cannot give the actual size of the lode in these workings, as the people are in the course of breaking it down, but it is from 1½ to 2 ft. wide, and in parts passing 2 ft. No. 2 is rather poor at present, but showing a little silver. A barra, or 24th part, can now be sold in this mine for more than $15000, and in great request.

San Jose del Carmen.—In a level driving from the surface into the large hill in which this mine is situated, and which we call the adit level, we have a good lode about 2 ft. wide, producing some ore of 400 to 600 mcs. per cajon, but the major part is ore of about 100 mcs. In a winze now being sunk below this level, where the lode is smaller—say 10 inches wide—the ore is of a better quality, about 300 mcs. to the cajon, and appears to be improving in quality. The stopes in the back of the adit level are looking very promising, and yielding a great deal of ore of about 60 mcs. per cajon, or 4*l.* per ton—this will pay exceedingly well in the summer, when we shall be able to procure cheap carriage to the city. It is impossible to give an accurate account, or even estimate, so as to report the quantity of ore taken out in this month here, being in an unprepared state, and still breaking when I left, but, I have no doubt, it will be from 20 to 30 tons—say 25 tons.

Merceditas.—We have broken down the lode in the two chiflons in this month, and the day before I left Copiapo, on the 20th, I received advice that at the bottom of the deepest workings they had taken out some stones containing large spots of white and native silver, that the lode was growing wider, and the captain writes me that he believes we shall shortly have a good lode of rich ore. The lode in the other chiflon is looking very pretty, and producing some stones with visible silver, but as yet the quantity is not great—these are the only points being wrought here at present.

Carmen Alto.—We are sinking the new shaft with all possible speed to cut the junction of the two principal lodes, where we hope to find a good bunch of ore, as each of the veins contains silver apart, and now and then produce rich stones—we all believe that when they join we shall find riches. We are driving two levels on each of these veins into the centre of the mountains, from each of which we take out stones of ore occasionally, and are every day expecting a rich bunch.

Colorada.—We have also had some improvement in this mine since I last addressed you. We are sinking at four different points, and on three different lodes—that is, two on one of the veins, and one on each of the others. I will give you the number of these workings as they stand, beginning in the south part:—No. 1, is the southernmost one on the main vein; No. 3, a working on a lode parallel with main vein; No. 4, working on an oblique vein in the last month, is where we have had the recent improvement; and, although it is not very great as yet, it is, in my opinion, very encouraging, especially when we consider the locality, so near the Al Fin Hallada; the lode is 2 ft. wide, and the greater part of it ore of about 20 mcs. per cajon, with some stones of better quality; I am in great hopes of a rich bunch here shortly. The other lodes are also looking well, and I have no doubt will be found productive as we get deeper.

Santa Ana.—We have an improvement both in the chiflon and the end driving north in the upper level, but as a small part of the lode only has yet been taken down, I cannot give its precise size in either of the workings, nor what the produce will be, but I hope in my next to be able to give you a very satisfactory account of this mine.

Transito.—This mine is looking more encouraging every day; and, judging from the pretty appearance of the lode, its size 2 ft. wide, and the beautiful strata surrounding, it is next to impossible that it can fail to produce good results. We are sinking at three different points, all of which are looking very promising, and from the one in the very centre of the sett we have broken some good stones of ore.

Loreto.—This mine is looking poor, and I have suspended the operations as far as the company is concerned, and I believe the other shareholders will do so likewise.

GOLD MINES.—*Descubridora.*—This mine has improved in the last few days. About the beginning of the month we met with a slide in the bottom of the shaft that greatly disordered the lode for several varas, but it is now become quite settled again, resuming its regular size and quality, about 1½ ft. wide, and ore that will yield from 1½ to 2 lbs. of gold per cajon (3 tons). Two levels are being driven, both of which are producing ore of similar quality, and the lode is 1 ft. wide.

Santo Domingo.—In the level we are driving north in this mine, there is one of the largest lodes that I have seen for some time, about 6 ft. wide, and producing some good stones of ore; in fact, it is all ore that would pay well in any other part of the world almost but this, and I believe, even here, were we to erect an amalgamation establishment at Piquios, that it would leave good profits. We are sinking a winze on same lode, which produces ore of similar quality—about 6 ounces to the cajon, and abundant. I hope, when summer comes, and carriage can be had at a more moderate price, to be able to return some of these ores, and make them pay well.

Chacabuca.—I have not had anything done in this mine since last reported on, the sett not having as yet been measured. I shall endeavour to have it added to the Santo Domingo sett, to save the expense of so many establishments.

Esperanza.—We have had the main lode in this mine heaved, or thrown out of its regular course by a slide, and are now driving a cross-cut in quest of it, and hope to cut it shortly; before we came in contact with the slide, the vein was producing some fair quality ore, and we hope to find it in its new position in a farther improved state. We are also working on the silver lode in this mine, but have not broken down the vein for the last 20 days. We have not returned any gold ore for the last month, solely on account of the very high price of carriage. I hope to be able to remit you 1000 marcs of plata pina per next steamer, or per *Sion*.

LINARES MINES.—*Oct. 27.*—I have to acquaint you that our progress in forking the mine during the past week has been similar to that preceding it, and the workings still being large, and the portions of the lode or lodes still standing being of the same encouraging character—viz.: showing branches of lead of 2 to 4 inches wide, in arches and other parts at present inaccessible for working, without expense, which we shall be very cautious in applying in the upper part of the mine, without the strongest reason, considering that it is not likely much good ground has been left by the former workmen, whose researches in this part have probably extended over many centuries. We have connected the second boiler, and the masons are engaged in completing the boiler-house and casing up the cylinder with bricks, we expect to make accordingly a great reduction in the consumption of fuel. Our capstan is also nearly completed.

THAMES TUNNEL COMPANY.

The number of passengers who passed through the Tunnel in the week ending Nov. 5, was—No. of passengers, 14,904.—Amount of money, £61 2s. 6d.

NORTH BRITISH AUSTRALASIAN COMPANY.

A shareholder here has handed us a circular which has just been issued by the directors of this company, of which the following is a copy:—

The directors of the North British Australasian Loan and Investment Company, in accordance with the recommendation of the committee of shareholders, approved of at the general meeting of 28th December last, beg to lay before the partners the following statement of the affairs of the company, at 30th June, 1848, being the date of the last balance received from the colony:—viz.,

ASSETS.

1. LAND IN NEW SOUTH WALES.

St. Clair Estate, 11,746 acres (valued at 10s. only—minimum Government rate, 20s. per acre)	£5873	0	0		
Lochinvar estate, 517 acres, including vineyard and houses, &c.	2000	0	0		
Town allotments, being building sites on the Illawara, Brisbane Water, and Port Phillip Districts, and Cock Fighter's Creek	2110	0	0	£ 9,983	0 0

2. LIVE STOCK, WOOL, TALLOW, &c., ON STATIONS.

Sheep on Rosenthal and Thane's Creek	£9670	19	0		
Cattle on Bundinbarrina, Molroy, St. Ruth, Rosenthal, Lochinvar, and Thane's Creek	7578	15	0		
Horses, with harness, &c.	1071	0	0		
Cattle and sheep on St. Clair, let on lease	2500	0	0		
Wool and tallow at Goomourra, Rosenthal, St. Ruth, and Thane's Creek	8282	6	8		
Implements, machinery, hay, maize, and other stores	954	0	0		
Wine, implements, &c., at Kelondah Vineyard	702	9	6		
Value of stations	400	0	0	£31,159	10 2

3. MINING PROPERTY.

Kaw-aw (amount expended thereon, less returns)	£22648	0	7		
Smelting-works (ditto)	1882	2	5		
Share of Bon-Accord mineral property (ditto)	2619	19	10	£27,150	2 10

4. DEBTS DUE TO THE COMPANY, AND MISCELLANEOUS.

Advances on consignments of wool and tallow	£ 3394	5	0		
Bills receivable	2665	19	1		
Balances due by sundry individuals	8380	17	6		
New Zealand debentures, &c.	67	19	0		
Office furniture, cash, &c.	160	1	7	£14,669	2 2
Amount of assets				£82,961	15 2

LIABILITIES.

Amount of the company's liabilities on open account, including agents' and bank accounts:—In Britain	£23463	5	10		
" " In Australia	4482	3	0	£27,945	8 10
Stock account				55,016	6 4

The books and balance-sheet, and the inventories of the company's properties in the colony, as made up and transmitted by Mr. Taylor, together with the general balance-sheet and report of the directors, will be laid before a general meeting of the shareholders, to be held within the Aberdeen Hotel, upon the 19th day of November, at one o'clock; and these are open to the inspection of the shareholders, at the office of the cashiers, who will afford every information and explanation that may be desired. The directors have deferred, for a short time, calling the general meeting, and addressing the shareholders, in the expectation that they might have been able to report a final adjustment of the question regarding the company's property in New Zealand. The validity of the Crown grant has been under discussion in the Colonial Court, but advice of the result has not yet been obtained. It is proper to mention, however, that Mr. Taylor has been officially assured that, in case of the grant being found to be null, the company shall receive 800 acres, free of charge; and, after a reference to England, have the option of taking the remainder of the island at the minimum price, which the directors understand to be 1*l.* per acre. The Bon-Accord Mine, which is contiguous to the Burra-Burra Mine, has hitherto been unproductive; but there now seems to be reasonable ground for expectation that, when efficiently worked, it will turn out to partake of the mineral wealth so abundant in its immediate neighbourhood.

ST. JOHN DEL REY MINING COMPANY.

TO THE RIGHT HONOURABLE THE LORDS SPIRITUAL AND TEMPORAL, AND TO THE HONOURABLE THE COMMONS OF THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND IN PARLIAMENT ASSEMBLED.

THE HUMBLE PETITION OF WILLIAM ROUTH.

Your petitioner humbly begs that you will be pleased to cause an inquiry to be made into the state and management of the establishment of the St. John del Rey Mining Company, which is situated at Morro Velho, in the province of Minas Geraes, in Brazil, belonging to an English Company in this city, their offices being in 8, Tokenhouse-yard, and the chairman of the same is Mr. John Diston Powles, of No. 1, New Bank-buildings, secretary to the London Dock Company. The mine of this company is worked almost exclusively by slaves (there are upwards of 1000 men, women, and children, on the establishment), there being great difficulty in obtaining free labour, owing to the scanty population of the country, the unhealthy occupation of the underground workmen, and the general disinclination of the Brazilians to go underground, where the mortality, either from disease or from accidents incidental to mining, is much greater than amongst the classes employed on the surface. Since June, 1848, the mortality among the underground slaves has been most frightful. This has been occasioned by the superintendent at the mine insisting upon the slaves working to such an extent, to keep up the produce, that they die from diseases rendered fatal by the exhaustion caused by overwork. The mine is worked for the purpose of extracting gold. To effect this, two deep holes are bored in the stone which is of the hardest nature. This is taskwork, and the slaves are forced to complete the *boring* of these two holes before leaving the mine.

The regular hours of work are *said* to be eight; but, in reality, the slaves work twelve underground; four of these hours are termed "overtime;" but, although the superintendent would wish to make it appear that they work "overtime" of their own free-will, your petitioner can bring evidence to prove that the contrary is the case. So far from its being so, the superintendent has overseers employed to hunt the slaves out of hiding places, whither they resort to avoid working, after having completed their "set tasks." From Jan. 1 to July 3, 43 deaths have occurred among the underground slaves. The number of slaves working underground is 170 borers, and about 96 kibble fillers, &c., but very often the first are employed in the place of the latter, and *vice versâ*.

This awful mortality has been caused by overwork, with the exception of five slaves, who met their deaths from accident. No doubt the accounts from the mines, received since the 3d July, record more deaths.

In June, 1848, a new 36-head stamps was erected to crush the stone from which the gold is extracted, and the great mortality has ensued since that period; from June, 1848, to 31st December, the deaths were in the same ratio as those now mentioned—viz.: from 1st January, 1849, to 3d July. The slaves formerly broke 19 tons of stone per month per each slave. Afterwards they were obliged to break the enormously increased quantity of 28 and 29 tons, but this has been at the expense of many lives; and your petitioner scruples not to aver that they have been murdered: it is not too harsh a term to use. This kind of work (*boring*) requires men of the strongest constitution, and then they ought not to be in the mine more than four or five hours per day; but the superintendent sacrifices everything to the obtaining of gold. The lives of the slaves are as nothing compared to this object; but so notorious is become Morro Velho for the excessive mortality, that it has passed into a proverb in the country. In speaking of hiring slaves to Morro Velho, slaveowners say they will not send their slaves to the "slaughter-house." The freemen who work inside the mine never work "overtime." How is it then, that if, as the superintendent states, the working "overtime" is such a *boon*, they do not avail themselves of it?

Your petitioner does not mean to assert that the directors of this company did not give instructions to the superintendent to treat the slaves well, and do everything to promote their comfort. They did so; but the misfortune is, that the chairman (Mr. Powles) will not believe that this frightful and horrible mortality proceeds from overworking the slaves; although two medical men of this city, who have examined into the medical reports received from the mine, are of this opinion; and two gentlemen who have recently arrived from thence, state that the slaves are murdered from overworking them, and the fact of the great increase of work done by each slave, which has caused the death of so many fine and robust negroes, is undeniable and irresistible evidence of the truth of what your petitioner alleges. At this time, when from deaths and from removal, the number of slaves working in the mine at Morro Velho is much diminished, it is evident that to keep up the rate of produce of gold, the slaves will be compelled to work still more, and it is for this reason that your petitioner humbly urges upon you the necessity of putting a stop to this hideous sacrifice of human life, by adopting such measures as will compel the superintendent to diminish the hours of work.

In the other mining establishments in Brazil the mortality is very trifling—the labour of the slaves being considerably less, and it is a disgrace to this company, both in Brazil and here, that its name should be blasoned forth as the "slaughter-house" of the unfortunate slaves who are compelled to work there.

The chairman of this company, in a circular letter addressed to the shareholders, dated 19th Oct., gives long extracts from the instructions which were given to the superintendent at the time he quitted this country for Brazil; but with respect to slavery there cannot be two opinions.

Your petitioner would beg to call your attention to the monstrous incongruity of British subjects possessing slaves, hiring them—in fact, purchasing them—when her Majesty's Government is endeavouring, by every means, to abolish slavery! Does the chairman mean it to be understood that the company employs slaves solely through benevolent and philantrophic feelings? Who will believe it? Your petitioner affirms, that the only reason why these slaves are employed in working the mine is for the sole object of obtaining large supplies of gold, without caring for the lives of the slaves; and it is the veriest hypocrisy in the chairman of this company to issue a statement to the world, that the company is benefitting these unfortunate and miserable beings, when it is well known their lives are sacrificed to the lust for gold.

Your petitioner would beg to impress upon you that, although it would not be expedient or prudent to liberate *at once* the slaves possessed by the company, yet her Majesty's Government should insist upon its not *hiring* more slaves, and restoring to their owners those whom they have already hired, which would be the means of saving their lives; and, further, the hours of work should be so reduced, that the slaves who remain in the possession of the company should not become the victims of an unbounded thirst for gold.

To prevent a continuance of this accursed system of overworking the slaves, your petitioner humbly prays that you will take such steps as will enable her Majesty's Minister at Rio Janeiro at once to put in force regulations with respect to the management of this establishment in Brazil, that will effectually prevent the recurrence of similar proceedings on the part of the superintendent at the mine.

ST. JOHN DEL REY MINING COMPANY.

SIR,—I have been so distinctly alluded to in Mr. W. Routh's letter, inserted in your last week's Journal, that any longer silence on my part might be construed into a tacit approval of the system at present pursued at Morro Velho, with respect to the working of the slaves.

So far back as 1843, in my official capacity of surgeon to the establishment, I called attention to the then great mortality amongst the mine blacks, and gave my opinion it could only arise from overwork, and that, as the mining captains, and others immediately concerned, always denied that they were in any degree overworked, and maintained that they worked for eight hours only, I proposed that the whole force should be divided into *three corps*, to work only eight hours each. My proposal was rejected; but my representations had at least one good effect in rendering the taskmasters of the poor negroes more cautious in their exactions of labour. Nearly all overtime also was done away with, and the mortality gradually, but sensibly, diminished. The present surgeon has thought fit to adopt a very different plan—the present superintendent is bent solely on large profits—and the present UNEXAMPLED mortality will continue unabated, if the directors do not interfere to put a stop to it.

I have no wish to come before the public with the details of a system which must meet with universal condemnation, and I have nothing whatever to do with the dispute between Mr. Routh and the directors; but, in the cause of humanity, I think it right to state here my reasons for believing the present frightful mortality arises from overwork; and to do this I must, in the first place, shortly describe the system itself, to show how easily this can be done, and yet leave room for very doubtful and contradictory statements.

With the exception of 48 men, all the slaves employed in mine work are devided into *two* corps, who work day and night alternately every week. One corps goes to work in the morning, and another in the evening, when they come under the orders of the mine captains, who dispose of them as they think best for the prosecution of the works in hand—some boring, others breaking rocks with a sledge hammer, filling kibbles, tramming, &c. There is no distinct class of borers, kibble fillers, &c., for the same black may be employed boring at one time, and filling kibbles at another, and so on.* At what time of the day or night they are allowed to leave work is all doubt and uncertainty. Very contradictory statements are made on this point. One thing, however, is certain—the extraction of the stone broken goes on unceasingly from Monday morning to Sunday morning, and all the blacks employed in this work (I believe 96 in number) relieve each other every 12 hours. The great majority, however, have task work allotted to them, and this is *supposed* not to exceed eight hours for the borers and ten hours for all others. When made to work beyond their tasks they are paid for it as overtime; but they are obliged to work when so required. In this way it is impossible to say what amount of labour they actually do at any particular period. They are quite at the mercy of the "zealous" superintendents, who may be anxious to get up the produce to favour their own interests; and it is melancholy to reflect that, on two distinct occasions, two different superintendents had each a present of 500*l.* given to him after a greatly increased produce, and a greatly increased rate of mortality.

Now, it is exactly amongst this class of men, whose labours I have just described, that we find *any* excessive mortality, which can only be accounted for on the supposition that it arises from overwork. I will not enter into detail, because I wish to avoid useless discussion; but there is no denying the fact that the finest portion of the Morro Velho blacks—picked men, in the prime of life, who do the hard work—are dying off at a fearful rate; whilst the old and infirm—those who do little work—generally speaking, live as long there as anywhere else. If it should be said that this arises from the mine work being more unhealthy, then it requires to be explained why the English miners who superintend the blacks, and the free borers, who work when they please, and never do any overtime, are not so unhealthy. But, above all, it requires to be explained why the mine work is so unhealthy to the slaves at one time, and not so at another; and I wish to call particular attention to this fact.

In 1847, the stamping power was unable to get through all the stone brought from the mine—that is to say, the then force of mine blacks easily broke *more* stone than the stamps could crush, and the mortality of the whole establishment, by the directors' own showing, was only 2 6-10 per cent. The first six months of 1848 also witnessed a very favourable rate of mortality; but, after the whole of the new 36-head stamps went to work (I think in Aug. or Sept.), and every exertion was made to keep them supplied without exhausting the refuse heap, now nearly gone, then the mine blacks began to die off at a rate which the directors naively remark, "has been met with before;" yet it never strikes them that this increased mortality has always occurred in conjunction with increased activity in the mine department. The surgeon said, in his annual report, "We have been visited by three distinct epidemics, two in which influenza was the prevailing disease, the third diarrhœa."

This, if true, would fully account for any unusual mortality; but these epidemics exist only in the imagination of the surgeon; for they have been witnessed by no one else. On the other neighbouring establishments we hear nothing of epidemics or increased mortality; and it still requires to be explained why they should have seized on the picked men at Morro Velho, and left the old and infirm of the same place comparatively free. Besides all this, the directors are perfectly well aware that the surgeon, so late as last May, assigned another and a very different reason for this great mortality, quite at variance with his previous statements.

Such, in substance, are my reasons for believing the slaves at Morro Velho are overworked. I have been for seven years surgeon to the St. John del Rey Company; and from January, 1848, to May, 1849, I did duty as manager of the blacks. My opinions have been formed and expressed whilst in their service, and not, as may be supposed, since I have been happily discharged by the superintendent. I am equally convinced this "murderous system" will bring its own punishment. The directors are aware of the liabilities they have incurred for dead slaves; but they may not be aware that the establishment is fast being burdened with a number of living, but useless, individuals. Sometime before I left, I myself gave to the superintendent the names of upwards of 100 men who were disabled for hard work. If the directors, or shareholders, do not interfere to put an end to this state of things—if the infatuated superintendent is allowed to pursue his reckless course, unwarned by the surgeon, or unchecked by those only who have any control over him—deaths and sickness will continue to diminish the remaining effectual force; the Brazilians will not only refuse to hire their blacks, but those already hired will be taken away as soon as it can be done, and the whole concern must soon come to an abrupt and ruinous termination.—ROBERT MONACH: *London, Nov.* 7.

* In this way there can be no correct calculation as to the exact number of deaths amongst the borers. It is at best only an approximation, and may be much *understated*; for when a black loses his health whilst boring, or sledging, he is removed to light work on the surface, and may come to die when the original cause of his death is lost sight of altogether.

taking, and the mismanagement, facts speak for themselves; the rich iron ore of Largos, so much boasted of as being inexhaustible, is nothing but clay-slate coloured by oxide of iron; the blast-furnace, never properly erected, was soon choked up and demolished, and having been built in a plain, it was liable to be overflowed in the rainy season, and the ore had to be transported a mile further than had it been erected on the declivity of a mountain in the very vicinity of the ores. The rolling mills and machinery, although the ground was spacious, were heaped among each other in so extraordinary a manner that two fly-wheels working conjointly are susceptible of receiving different speeds, with other gross blunders too numerous to mention. What makes the matter worse is the fact that the engines and machinery are as beautifully finished specimens of mechanism as can be seen, and are highly creditable to the English makers, and to the resident engineer, Mr. Patterson, who fitted them up, but under sad misdirection. I shall avail myself of the opportunity here to say fearlessly, that had it not been for him, and the capacity of the head miner, Mr. James, things would have gone still worse, and the whole concern stopped long since. In my opinion, it is an affair the like of which we shall never see again. The moral effect has been produced; and I sincerely trust the material effect may fall lighter than I fear it will on the unfortunate shareholders.

St. Etienne, France, Nov. 1. POLYCARPOS GONZALO Y RODRIGUE.

ASTURIAN MINING COMPANY.

SIR,—The attention you have recently devoted to the affairs of the Asturian Mining Company induces me to address you, in the hope of eliciting some information, either from your own remarks, or those of some of your correspondents, whereby I may be guided in what I consider a serious perplexity. Observing, through the medium of your columns, the mass of inextricable confusion in which the business of this company is placed by the derelictions of the directors, whilst I hold comparatively so small a number of shares, as to prevent my taking a prominent part in the proceedings, I had made up my mind to continue my interest no longer in the same vehicle with such an ignorant and reckless Jehu as the direction, which has held the reins, and holds on like a drunken coachman, who, after an upset, still insists on driving. I, therefore, called at the company's office, to ascertain by what mode I might dispose of my shares, so as effectually to get rid of the connection.

I do not complain of the reception I met with from the gentlemen to whom I was introduced, whose explanation, as far as regards the present and future dispositions, seemed as satisfactory as could be under the circumstances. However, I did most distinctly remark that there was a considerable reserve in favour of the late directors, as if the new managers had to fear the interference and influence of the men who have the hardihood to stand before the shareholders after leading the company admittedly to the brink of bankruptcy. I cannot understand this, even on the excuse that some of the directors were untainted by an actual participation in the fruits of fraud. It was their duty to search for, and denounce dishonesty. If they failed in that obligation, they became accessory after the fact, and are responsible to the shareholders. For instance, I attended a meeting on the 25th of last September, when certain charges were made against the directors. Several of them stood up to explain; and one, in particular, referred to the minute book to show—not that he was absent, and incapable of knowing anything of the acts of which he was accused, but, in reality, that he was present, from the beginning, at all the proceedings; and if he were not a consentient or participant party, he ought to have been ashamed to admit so clearly his neglect, or incapacity.

Whatever may, therefore, be the degree of responsibility of each director as amongst themselves, they are in justice, if not in law, collectively as a Government, guilty before the shareholders of the crime of any one whom they, in their official character, have sheltered from punishment, and retained as their associate. When I asked whether the charges so advanced had been explained away and withdrawn, so as to entitle the original directors, who constitute the majority of the new board, to the confidence of the shareholders paying the present call, the answers from the two members of the committee present were such as to show that the chairman was at variance with the others as to the propriety of further prosecuting those charges. Now, I cannot hesitate for a moment to believe those charges to be true as against all; for, if not, why are they silent? If, as asserted, any of them sinned through error of judgment, why not avow the truth, and let all so implicated retire from the direction, as any man of honour so circumstanced would do. Those who outrage decency, and act otherwise, braving the consequence of their mismanagement, must not be surprised that men of business will not support them. To withdraw my support, for one, upon these grounds, I made the inquiry I have mentioned, as to transferring my shares. One would think that, after so many years of the company's operations, I might obtain a straightforward answer to so simple a question. Quite the contrary; for it seems we have hitherto existed under a total deception, ignorant wholly of our rights and liabilities as members of an anonymous company, in which blissful state of ignorance it seems the directors themselves equally share. We have been all along led to suppose that the possessor of anonymous shares could pass them to any one he pleased with all their liabilities. I took the trouble of copying a passage from the Spanish law, which will serve to dispel the delusion, and which I give for the benefit of those similarly circumstanced.

"*Los cedentes de las acciones* inscritas en las companias anonimas que no hayan completado la entrega total del importe de cada accion quedan garantes del pago que de berán hacer los cesionarios cuando la administracion tenga derecho á exigirlo" (Art. 283). Which, in plain English, means that if a shareholder assigns his shares, he is still liable for the calls, unless paid by the transferee. I am told that this liability expressly attaches, until the whole capital is paid up, to the shares which we have been always taught were transferrible, like a bank note; and I am also told that, by one of the provisions of the Spanish law (the 322d or 332d), I cannot dispose of my interest without the consent of my copartners.

I do not object that there is anything unreasonable in all this; but why have we been deceived? In the event of your not being enabled to assist me with a satisfactory explanation, as to the liabilities of shareholders in this company who may transfer their shares, I have made up my mind, contrary to my original intention, to keep my shares, and pay the present call, with the resolution of spending ten times their value in making those suffer who have led me into error. I do not care whether I am supported or not; but I hope the shareholders generally lack not that sound English spirit which is never provoked with impunity.—AN ASTURIAN SHAREHOLDER: *Nov.* 9.

CAMBORNE CONSOLS MINING COMPANY.

SIR,—Will you allow me a space in your valuable Journal to make a few remarks on the letter of your correspondent, "An Old Subscriber," who has written in reference to the discovery in the silver lode in these mines, and whom I take to be one of your fast gentlemen about town, and lest I may be suspected of trotting alongside, I deem it necessary to put a curb upon him. It would be a hit, indeed, if we could calculate upon such a discovery for the length of 400 fms. I am very apprehensive, however, that no such hit is to be made but by "shooting with the long-bow." If he were right in resorting to the "rule of three," and the asserting as 1 fm. gives 250*l.*, 400 fms. in length must give 400 times as much, he has done us great injustice in confining us to only 1 fm. in depth, whereas the probabilities are that we shall discover valuable branches of silver ore at various and considerable depths below the 20 fm. level, as well as above that level, and even (by-and-bye) at and above the adit; but those who imagine that such discoveries are to be reckoned upon in continuity for 400 fms., or one quarter part of the distance, deceive themselves. The discovery of silver which we have recently made is, unquestionably, an important one, and forms a remarkable epoch in the annals of mining in this district, tending, as it must, to puzzle the geologist and mineralogist alike.

This locality, I need not tell you, abounds in metalliferous ores, and, in regard to tin and copper, may be classed amongst the first in the world; but, notwithstanding we are surrounded by the richest tin and copper mines, some of them also bearing lead, in which one might expect to find a small portion of silver at least, there is not an instance of a particle of silver, that I am aware of, being produced from any of the lodes but in the single instance of our own, in which there is barely a vestige of lead to be seen: hence I was amongst the number of those who, when the silver was first found upon our vein in Dolcoath, supposed it to be an accidental circumstance—an unaccountable freak of Nature (if I may be allowed the expression)—and not likely to occur again. Happily our discovery has dissipated that opinion, and we have opened sufficiently upon it to convince us that the lode is, in fact, a distinct and valuable silver course, instead of a copper vein, which I had previously supposed it might be. This, however, is not a solitary instance of the kind. One of the richest silver mines in the world, Konigsberg, in Norway, which has, for a series of years, been realising enormous profits, is left alone in her glory; she has not a competitor, in the shape of another silver lode, in the district to which she belongs. A correspondent of yours, in your last Number for Oct., speaks of the discovery of silver upon our vein in the Dolcoath sett, as being confined to a few months only; this is quite erroneous. The vein was, for a considerable time, wrought for copper, and there not being the slightest idea entertained of the presence of the precious metal, it was for years thrown away with the rubbish, whilst copper ore, rich in silver, was sold for the value of the former metal; and the mistake was first discovered by the workmen in their progress suddenly coming upon capillary or native silver, and thereupon large quantities of silver ore were recovered from the baser matter, with which it had been confounded, and many thousand pounds worth was afterwards raised and sold; but even this did not dispel the belief that it was only a fortuitous bunch, and it remained for us till now to prove the fallacy of their judgment. It is true, notwithstanding, that two gentlemen, believing it to deserve more attention than it had obtained, sought in vain to get from our neighbours a grant of that part of the lode within the limits of their sett upon tribute for five years, in anticipation of meeting with argentiferous deposits.

I know not from what source you derived your information as to the specimens of silver from the mines, which were exhibited at the North Roskear Mines, on Saturday, the 27th October. I certainly had the pleasure of show-

ASTURIAN MINING COMPANY.

SIR,—Born in England, the son of a Spanish emigrant and an English mother, and being a constant reader of your excellent Journal, I take great interest in whatever comes under the appearance of an international question between Spain and England. Hence I have been both surprised and pained to observe several articles in various Numbers of the *Mining Journal* respecting my countrymen, with regard to the Asturian Mining Company. I wish it were possible for me to leave this place for England to tell you verbally much more than I can write on the subject; but, unfortunately, my mission here will last at least a month. I, therefore, appeal to your candour and fairness to insert these remarks—if not the whole, at least their principal features. Although the observation, "enriching rapacious foreigners," has been used, I can assure you there are few who are in any way envious of the mines of the Asturian Company, and particularly its sadly deplorable iron-works at Mieres. I should have been most happy to see all their undertakings flourish; but which, I fear, never will, from the funds having been so lavishly thrown away in my country by proud managers and head clerks, without leaving any return but to the owners of wine-houses and taverns.

The history of this company, since first established by a few Frenchmen, is of too great length for me to notice here; volumes might be written on the gross faults, to use the mildest term, which have been committed; and I, therefore, come at once to a fact which the shareholders are probably ignorant of. The boat which arrived at Riba de Sella with the machinery on board had also secreted prohibited goods to a large amount, such as soap, candles, &c.; and the numerous articles smuggled on shore from the steamboat, under the direction of one of the brothers Manby, does not show unfavourably *of the character of the nation, or of their litigious disposition*. The inhabitants wondered and laughed much at seeing a large staff of mining engineers and workmen, all richly paid, employed on mines abandoned a long while previous by the Germans, as well as by the natives; and their expectations have been partly realised in the abandonment of San Esteban, Carlis, &c.; and the directors ought not to complain of the insecurity of the laws, for in any other country, particularly in England, not a tenth, or a hundredth, part of the illegalities committed by them would have been left unpunished, much less unnoticed; the Government have shown great sufferance rather than molest them. Of the nature of the under-

ng them to my friends there; they were splendid of their kind; but I did not hazard an opinion as to their value. Your correspondent was not very wide of the mark; they were, perhaps, worth more than 4000 ozs. to the ton rather than less; but to quote an homely phrase, "one swallow does not make a summer," neither does the exhibition of a picked mineral go to establish the value of the whole; judging from what we have in our present end, and have already seen, I do not hesitate to state my belief, that we shall occasionally meet with bunches of silver ore worth much more than 250*l.* per fm.; whilst at other times, it will be of much less value. The very fine appearance of the lode in the adit, for many fathoms west of the 20 fm. level end, gives great reason to hope that in our progress we shall find rich and valuable deposits of silver; and if it should dress up to 100*l.* to 150*l.* per fm., the most grovelling man in the proprietary may well be satisfied. The lode has not yet been sufficiently explored to justify my giving any positive opinion of its real value as to monthly or annual produce; it is a question as to which your correspondent must "wait a little longer," though there are "good times coming."

"An Old Subscriber" is also a little too fast with regard to the produce of our copper lodes. We have to approach, perhaps, the most productive of them through our 20 and 40 fm. levels, which will take some months to accomplish. This effected, there can be no reasonable doubt but we shall be producing ore which will much more than meet the current costs; in the meantime, there are other chances, with reference to copper, which we daily expect to realise, and upon the whole our prospects are unusually cheering. In conclusion, it is pretty generally understood here that there will be little or no need for further calls upon the proprietors. I am disposed to believe that your correspondent would not readily purchase a number of shares at 20*l.* per share amongst the local shareholders, whatever he might do in town. F. DANIELL.

Camborne, Nov. 8.

MINING IN NORTH WALES.

SIR,—In the *Mining Journal* of the 20th October there appeared an account of a cavern, discovered at Llandudno Mines, which proved to be an old working near the surface about the centre of the mountain, more than 150 yards above the sea level; but the most surprising and mysterious of caverns—*if it can be called a cave*—is from 20 to 40 fms. below the sea, or adit level, in the same mine. About the middle of January last, as the miners were at work in the deepest part of the mine then in operation, they observed an increase of water at foot, and within a minute overflowed the holes then in preparation for blasting, so as to compel them to ascend; the water following their heels with increasing rapidity, and filled a cavity of 200 cubic yards as quick as they could walk before it, until they got safe into more extensive excavations; the water continuing to increase, and rushing out with greater violence for one hour and forty minutes, filling a vacancy of more than 6000 cubic yards, at the rate of 10,000 gallons per minute, for 100 minutes = 1,000,000 gallons. Afterwards, in attempting *(for about two months)* to clear below the 100 fm. level from surface, which is about 30 fms. below the adit, one of the miners narrowly escaped with his life, having met with a second burst equally terrific.

The deepest workings are many fathoms distant from the engine-shaft, where, on one of the lodes, there is a winze sunk under the 100 fathom level, about 5 fms. perpendicular; from thence are workings obliquely in a northerly direction (descent about 1 in 4), for more than 20 fms. in length, at the extreme end of which the water proceeded. Some are of opinion that the water ceased on account of the aperture being choked, as the winze and sloping excavations from the same were full of slime, consisting of mud and fine sand. In clearing it, the workmen met with several smaller bursts of water; and before they could proceed many yards on the incline, the before-mentioned and last enormous rush deterred all further proceedings. The mine has been suspended altogether for several months past (in the deep workings), and the water risen to the adit level, at a great loss to the working miners and inhabitants generally, as the principal support and prosperity of the village depends on the working and success of the mines. It is said of Holywell, according to the accurate observations of Mr. Pennant, that "*it produces 21 tons of water every minute;*" but this was more than twice that quantity, amounting to 42½ tons per minute.

Queries.—1. Was this enormous eruption from a cavern?—or, 2. Will it not ultimately prove to be an overflowing fountain, similar to Holywell?

Flintshire, Nov. 6. P. V. W.

WHEAL MARY EMMA—THE OXIDE OF TIN.

SIR,—Permit me to make a few observations respecting a letter which appeared in your valuable Journal of the 27th October, signed "Mineralogist." The writer, after alluding to the difference of opinion amongst crystalographers, as to the *primary* form of oxide of tin—one contending for the *cube*, and another for the *octahedron*—says: "To determine this point is, therefore, a most interesting object in a scientific point of view." Only a few sentences occur, however, and then the writer tells us that he had received a sample of tin from Wheal Mary Emma, which contained "numerous crystals of the *primary form, octahedral.*" I am inclined to think that he has not thoroughly inspected the crystals; and I am led to this conclusion in consequence of my having inspected a great many specimens of oxide of tin from Wheal Mary Emma, as well as from other places, without detecting a single *octahedral crystal.* All the crystals which I have seen from the mine just named took the form of a quadrangular prism, terminated by a four-sided pyramid, which is the common crystalisation of tin ore. The shortness of the prism probably has misled "Mineralogist." Is not the *primary* form of oxide of tin a right square prism?—Z.

Tavistock, Nov. 6.

THE TALACRE MINING COMPANY.

SIR,—I should advise those interested in the affairs of the late Talacre Mining Company to call a meeting of the sufferers; for I think we might obtain some very curious information on the subject, as I find that Mr. Lewis Levason has returned to England, and is now practising his old profession as a dentist, at Pentonville. I have had an interview with that gentleman on the subject, and he expresses his readiness to supply the necessary information to corroborate, or refute, the statements put forth by the late chairman of the company and others.—ONE OF THE TALACRE SUFFERERS: *London, Nov.* 6.

BIRCH TOR AND VITIFER MINES.—Capt. Seccombe having, in compliance with the request of the directors of this company, inspected the mines, has forwarded his report to the secretary, from which it appears that in sinking a new shaft on the Old Vitifer lode, the men had got down 20 fms. below the deep adit, the ground very favourable. A 10 fm. level had been driven west of Dunstan's shaft, more or less productive for tin the whole length, and the present end will yield 8*l.* worth of tin per fm.; the level is laying open very profitable ground. A 10 fm. level has also been driven east, now being worked at 8s. in 1*l.* A 20 fm. level is driven east, the lode much of the same character; but westward, after being productive about 3 fms., the lode is split, but is expected again shortly to unite. Shafts and levels have been cleared up and timbered, and further work of the kind he recommends to be proceeded with; there is sufficient water power for draining, drawing, and stamping, machinery in good condition, as also stamps, buildings, &c. The report concludes thus:—"I would recommend the company to confine their operations exclusively to the development of the Vitifer lode, and driving the deep adit north to intersect the north lodes, until the proceeds of the mine are sufficient to meet the cost of other operations. The excellent prospects of the Vitifer lode, so far as laid open, fully bear out my opinion furnished to you in May, 1848; and I cannot see anything to prevent your sales of tin being rapidly increased, and this will not fail, according to my firm opinion, to become a very profitable and lasting mine; but to effect this, a spirited system of working the Vitifer lode must be adopted. The amount of profits will very much depend on the quantity of work that can be accomplished monthly. Your agent will, I believe, avail himself of every improvement that he may consider beneficial for the future working of this mine, and it is my decided opinion that he is using his best efforts for the benefit of his employers."

[From the *Plymouth Journal.*]

ASHBURTON.—The report from the mines in this district is as follows:—At the Ashburton United several men are employed, and the tin varied, is in quantity just as for some months past—near 5 tons were sent off last week. At Whidden Mines there is not much work going on. At Waye Alston, the mine was set on Saturday last, and has every appearance of proving advantageous. The fire-engine at Coombe will not be worked for some weeks.

WHEAL FRANCO.—The lode in the winze, in the 47 fm. level, east of the engine-shaft is improving. The lode will take away at a moderate tribute when the 62 fm. level is extended under it. The 62 fm. level is about 7 fms. behind this winze; the lode in this level is improved during the last month, and, although the end will not pay for driving the backs will work away at tribute; in the 64 fm. level west, there are good stones of ore—this level is driven to within 35 fms. of the great cross-course. The lobby for the new water-wheel is being proceeded with very slowly, only six men being employed on this work, and unless more strength be put on, it will take upwards of 18 months to complete. Every thing indicates that there will be a rich mine here at a greater depth, the present sump not being deeper than many adit levels in Cornwall.

WHEAL YEOLAND.—In the end of the level driving west, there is a lode worth 4*l.* to 5*l.* per fm., and the level driving east is disordered by a run of spar, which appears to be dying out; the pitches are looking well. The sinking of the engine-shaft has been resumed. The mine may now be said to be put into a good course of working.

TAVISTOCK CONSOLS.—The shaft in the Wheal Ash lode has been sunk 2 fms. in the last month; it is now all of 5 ft. wide, and composed of mundic, with prian, peach, and spar; the underlay continues to be from 1 to 1½ ft. per fm., and the walls are well defined and regular; within the last fathom there has been more spar and peach in the lode, and I am happy to say that it now carries small quantities of tin throughout, and, from the change which has taken place within the last fortnight, I confidently expect that there is a good lode not far under our present sump. I send you a piece of white tin, ran down from stuff taken out of the shaft on Monday last.

ACCIDENTS.—*(Continued.)*

Wheal Seton.—J. Trevelyan was killed on the spot, by the premature explosion of a blast.

Garras Mine, Chiverton.—A miner named John James was killed here by a fall of roof. This man was miraculously saved at the great accident at East Wheal Rose, by the floods; he got one finger hitched in the chain, and was unintentionally drawn to the surface.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

ALFRED CONSOLS.—The mine is looking well; the sump below the 60 fm. level is producing 8 tons of ore per fm., worth 40*l.*; the 60 fm. level end yields full 6 tons per fm.; it was at this depth that the great course of ore in Great Wheal Alfred made dipping towards the present workings.

BWLCH CONSOLS.—This mine is progressing satisfactorily, improving in prospects and returns.

CAMBORNE CONSOLS.—Since my communications respecting these now very interesting mines, published in last week's Journal, I have not been able to gather any more conclusive information as to the present value of the silver lode recently discovered, than the report that Capt. Joseph Vivian was underground at the beginning of this week inspecting the silver lode, and broke during his short stay, at a rough guess, from 10*l.* to 15*l.* worth of silver ore, and expressed himself in general not only much satisfied with, but also greatly surprised at, the excellent prospects of the adventurers. I should suppose you are by this time furnished with an accurate report from the agent of Camborne Consols; if not, I will endeavour to keep you as well advised as my limited means for information will enable me.

CARDIGANSHIRE.—The mining prospects in this district are improving greatly, and a general feeling is displayed to invest. The returns generally are of a highly favourable and encouraging nature.

HOLMBUSH.—The Flapjack lode is holding good, as last reported.

PENYCEFN.—In the 30 fm. level, west of the engine-shaft, a good course of ore has been discovered in whole ground, which promises well.

SOUTH MOLTON CONSOLS.—There is a lode in the north sett of this mine worth full 50*l.* per fm.; it is 3 ft. wide, and nearly solid ore throughout. I visited the mine, and saw the lode, on this day week, when it was worth about 40*l.* per fm. On last Monday it made the value it is at present, the lode continuing as it was opened on. The prospects of the mine are encouraging, and in a short time there will be a good sampling of lead ores. It is to be hoped if this mine answers as calculated on, it will lead to further adventures in this neighbourhood, which appear worthy of notice for the production of mineral.

SOUTH WHEAL JOSIAH.—There is some little improvement in the mine, some good ore having been broken from the adit end with every appearance of improving. The end has been again set to drive, at 3*l.* 3s. per fm., and also a new pitch to two men in the bottom of the adit, with a view of sinking on the ore gone down, and there is every hope of succeeding.

TREBELL CONSOLS, in Lanivett, is likely to prove a very productive and profitable mine; a considerable quantity of rich work has already been raised from the smallest of the three tin lodes, which is about 3 feet wide; the other two are from 12 to 15 feet wide each. Instead of putting up a water stamps at some distance from the mine, as we at first intended, we have borrowed a stamping mill, three or four miles off, and are now engaged in dressing a small batch of tin, so as to prove its quality, previous to the erection of steam-power on the spot; as to the quantity, there is very little doubt with any practical man who has gone to see for himself, and I fully believe the quality to be very superior, being in decomposed granite, and just in the run of Wheal Trescoll, and contiguous to it. The mine is at present worked by a very small number of shareholders, and if they have only spirit and strength sufficient to erect a small steam-engine—say 22 in. cylinder—for the purpose of pumping and stamping, they will be able to sink to a good depth, and, I have no doubt, return a sufficient quantity of tin to cover the outlay, and give them good dividends.

WHEAL CALSTOCK.—The deep adit end driving east, coming in 50 fathoms deep, has a promising lode now turning off to the north, where it will, in a short distance, form a junction with another lode; in the same level west there is a course of ore 5 fms. long, out of which above 100 tons of ore have been taken, and now dressing; the ore is strong, but much mixed up with mundic. A sink in this level is now making in the lode for a winze, to communicate with a level 13 fms. below; an old shaft of this depth having been cleared up, the level is clearing; the lode, as far as can be seen, has been all taken away up to the adit; the sink is 10 ft.; the lode is much improved, 7 ft. wide, with a leader 2 feet, 8 in. of which is solid ore. The machinery erected is a 40-ft. wheel and grinder under cover, a 50-ft. engine-wheel, with a lift of 9-in. pumps, and an inclined plane of 70 or 80 fms. long, for bringing the stuff to grass from the deep adit.

WHEAL MARY EMMA.

At a meeting of adventurers, held at the Bedford Hotel, Tavistock, on the 1st inst, the accounts were examined and passed, showing—Labour cost for eight months, ended the 31st of October last, 102*l.* 1s. 3d.; merchants' bills, 5*l.* 7s. 5d.=107*l.* 8s. 8d.—By first call of 1s. per share on 1024 shares, 51*l.* 4s. —leaving balance against adventurers, of 56*l.* 4s. 8d. A water-wheel, suitable for the mine, being for sale by the Sourton Consols Company, it was resolved that the captain ascertain the best terms on which it may be obtained, but not to conclude the purchase without sanction of purser and chairman. A call of 2s. 6d. per share was made, and the following report was read:—

Nov. 1.—This sett is held on grant from the Duchy of Cornwall, at 1-18th dues, and embraces the whole of the commons, called High Downs, in the Parish of Lydford; is bounded on the east by the River Lyd, and on the west by King's Wall, or the enclosed lands; is about 1½ mile long from north to south, and 600 fms. from east to west. The first operations carried out by the present company were to clear out a shallow adit, or old men's working, in order to see the character of the lode; here we found it worked open in depth, varying from 10 to 20 ft., and a sink below the level 5 ft. deep, in which, we have sunk about 1 ft., and have broken some exceedingly rich tinstuff. The lode in the sink is 20 in wide, composed of capel, spar, elvan, and tin. In the stopes to the west of the sink is a lode of a most kindly description, it being 2 ft. wide, with a leader of tin to the south, and the lode impregnated throughout with tin, which will pay well for taking away. Still further west, the old men have sunk about 3 ft., where there is good tinstuff to be broken. Since clearing out the before-mentioned shallow level, a deep adit has been commenced, which is computed to come in 10 fms. under the old men's sink in the shallow level; and, when driven under the highest part of the hill, is supposed to show a back of from 25 to 30 fms.; the lode in this level for the first 10 fms. was poor, and passed through a small cross-course, since which we discovered a rich bunch of tin; the lode continues to produce some good saving work, and is of a most promising appearance; in the bottom of the end it is 2½ ft. wide, and about 18 in. in the back, composed of capel, spar, and tin. This level is now about 16 fms behind the course of tin in the sink in the bottom of the shallow adit, but there has been some good work broken about 5 fms. nearer to the point, at which the deep adit level has arrived, consequently I expect that in a very short distance, we may safely calculate on a rich and lasting course of tin. The bar of hard ground we are now driving through in the deep adit is seen in the shallow adit, to west of which is a visible alteration for the better, and in which tin ground commences. About 40 fms. north of this lode is another of a similar composition, and about 2 ft. wide, which has been opened upon in several places by the ancients; although of a kindly description, it is poor at the surface, but will undoubtedly prove productive in depth. It is supposed that these two lodes form a junction at about 150 fms. to the west: should this be the case, great and good results may be expected therefrom. A considerable distance to the south a very large tin lode has been discovered by shoding; it is upwards of 8 ft. wide, composed of capel and spar, and is well worthy of your attention. A cross-course, or lead lode, is also opened upon, which will intersect this lode about 40 fms. west, which, in my opinion, is a very favourable circumstance. With regard to the future operation, I should advise the prosecution of the deep adit level west by the present number of six men; and also to put six men to sink on the course of tin in the bottom of the shallow level, in order to lay open tin ground, and for ventilation. I would beg to remark, that the facilities of this mine are more than are generally found in one place, and there is a never-failing stream of water, which can be brought in to a sufficient height for all required purposes.

BALLESWIDDEN.—The usual account was held at the mine on Tuesday, when it appeared that the wages, coals, and carriage, amounted to 289*l.* 16s. 3d.; merchants' bills and dues, 79*l.* 19s. 10d.=369*l.* 16s. 1d.; dividend of 7s. per share, 56*l.* 8s; to profit and loss account, 17*l.* 9s. 11d.=443*l.* 14s.—By tin sold, 441*l.* 11s. 11d.; sundries, 16*l.* 2s. 1d.=443*l.* 14s.

EAST WHEAL ROSE.—At a meeting of adventurers held at the mine, the accounts were examined and passed, showing—Balance from last account, 271*l.* 19s. 4d.; proceeds of lead ore sold July 6, 164*l.* 13s. 8d.; ditto 13th, Oxnam's, 219*l.* 16s. 7d.; ditto 20th, East Wheal Rose, 217*l.* 7s. 5d.; ditto August 3, 303*l.* 14s. 2d.; ditto 10th, Oxnam's, 218*l.* 12s. 6d.; ditto 17th, East Wheal Rose, 201*l.* 4s. 10d.; ditto 31st, 247*l.* 11s. 2d.; Cargoll adventurers, water, and agency, 161*l.* 8s. 1d.; ditto for company's three-fourths profit, 130*l.* 13s. 9d.=14,788*l.* 1s. 6d.—By cost July, 239*l.* 10s. 9d.; surgeon and club, 30*l.* 8s. 3d.; costs for Aug., 245*l.* 7s. 7d.; surgeon and club, 32*l.* 8s. 9d.; merchants' bills, 197*l.* 19s. 3d.; coals, 40*l.*; income tax, 20*l.*; lords' dues, 81*l.* 17s. 10d.; way wardens of Newlyn, 10*l.*; on account of new engine, 200*l.*; Mr. Treffry, carriage per rail, 25*l.* 18s. 8d.; dividend 25*l.* per share, 3200*l.*; sundries, 36*l.* 8s. 5d.—leaving balance in favour of mine, 270*l.* 2s.

LELANT CONSOLS.—At a meeting of adventurers, held at the Star Inn, Penzance, on the 19th Oct., the accounts for five months to end of September, were examined and passed, showing—Balance last account, 25*l.* 12s. 4d.; labour cost, 129*l.* 6s. 2d.; merchants' bills, 31*l.* 7s. 3d.=163*l.* 5s. 9d.—By tin sold May 24, 36*l.* 18s. 8d.; June, 28, 34*l.* 15s. 6d.; July 26, 27*l.* 17s. 8d.; Aug., 30, 30*l.* 10s.; September, 27, 22*l.* 5s. 11d.; sundries, 25*l.* 13s. 6d.—leaving balance against adventurers, 97*l.* 4s. 6d. There were, however, some outstanding accounts settled, and costs incurred about the adit for the contemplated new workings, paid during this period, amounting to 18*l.* 10s., and thereby showing, that as far as the receipts and expenditure of the existing works are concerned, there has been a profit on the five months' working, of 87*l.* 5s. 6d. The committee reported that an engine had been purchased, and buildings commenced for operation on the northern part of the sett, and it is hoped that the engine will be at work, and the adit completed to the shaft by the end of January next. A call of 8*l.* per share was made, and Capt. Thomas Richards was appointed managing agent, at a salary of 2*l.* 2s. per month.

SOUTH WHEAL FRANCES.—At the two-monthly meeting of adventurers, held at the mine, on the 5th inst., the accounts were examined and passed, showing—Lead ore sold, 305*l.* 5s. 3d.; tin ditto, 41*l.* 2s.; tax from dues, 50*l.* 0s. 8d. = 852*l.* 7s. 11d.—By labour cost, August, 65*l.* 17s. 8d.; ditto September, 52*l.* 4s. 9d.; merchants' bills, 49*l.* 5s. 11d.; dues, 23*l.* 6s. 2d.; rates, &c., 70*l.* 2s. 10d.: leaving profit of 154*l.* 10s. 7d.; which, added to balance last account, 65*l.* 4s. 1d. = 219*l.* 14s. 8d; deducting dividend of 10*l.* per share (1240*l.*): leaves to carry to next account, 95*l.* 14s. 8d.

WHEAL COMFORT.—A meeting of adventurers took place at Wheal Buller account-house on Friday last, when the accounts for June, July, August, and Sept., were allowed, as follows, and a dividend of 3*l.* per share was declared, and it was stated that the mine never looked so well as she now does:—By balance from last account, 176*l.* 9s. 8d.; ores sold (less dues), 197*l.* 16s. 6d. = 2149*l.* 17s. 2d. —To costs and merchants' bills, 156*l.* 8s. 7d.; dividend of 3*l.* per share, 384*l.*; = 1952*l.* 8s. 7d.; balance in favour of adventurers, 197*l.* 8s. 7d.

WHEAL SPEARN CONSOLS.—At a meeting of adventurers, held at the Union Hotel, Penzance, on the 1st inst., the accounts were examined and passed, showing—Balance last account, 43*l.* 14s. 4d.; tin sold, 191*l.* 15s. 3d; sundries, 3*l.* 6s.=196*l.* 5s. 7d.—By labour cost for four months, to the end of August, 122*l.* 6s. 8d.; coals, 10*l.* 19s. 10d.; merchants' bills, 23*l.* 5s. 6d.; rent, rates, &c., 25*l.* 8s. 9d.—leaving balance in favour of adventurers, 37*l.* 4s. 10d. A dividend of 30s. per share was declared—leaving a balance carried to next account, of 18*l.* 4s. 10d.

THE MINES IN THE PENZANCE DISTRICT.

We are indebted to a correspondent for the following particulars—showing the principal mines, the pursers' names, and where the offices are situated:—

Company.	Pursers.	Offices.
Balleswidden Mine	Mr. R. V. Davy	Mine, and at Penzance.
Botallack	Mr. S. James	At the Mine.
Boscaswell Downs	Mr. W. Lawry	ditto
Levant	Messrs. Batten & Rodda	Penzance.
Penzance Consols	Mr. Thomas Carthew	At Balleswidden Mine.
Spearne Consols	Mr. Richard Pearce	Penzance.
Spearne Moor	Mr. S. Higgs	ditto
Wheal Bal	Mr. J. T. White	At the Mine.
Wheal Owles	Mr. John Boyns	ditto

We should feel greatly obliged for similar information to the above respecting other districts, from such of our correspondents as will oblige us by communicating it for publication in the Journal.

LATEST CURRENT PRICES OF METALS.

LONDON, NOVEMBER 9, 1849.

ENGLISH IRON. *a*	per ton.
Bar, bolt, & square, London	£5 15 0—6
Nail rods	6 15 0—7
Hoops	7 15 0
Sheets (singles)	8 10 0
Bars, at Cardiff & Newport	4 15 0—5
Refined metal, Wales*	3 10—3 15
Do. anthracite*	3 15 0
Pigs in Wales	3 5—4 0
Do. do. forge	2 15—3 0
Do., No. 1, Clyde ... *net cash*	2 6—2 4
Blewitt's Patent Refined Iron for bars, rails, &c., free on board at Newport*	3 15 0
Do., do., for tin-plates, boiler plates, &c., ditto	4 10 0
Stirling's Patent in Glasgow	2 12—2 14
Toughened Pigs in Wales	3 5—4 0
Staffordshire bars, at the works	6 10
Pigs, in Staffordshire	2 10—2 15
Rails	4 15—5 0
Chairs	4 0 0
FOREIGN IRON. *b*	
Swedish	11 0—11 10
CCND	—
PSI	—
Gourieff	—
Archangel	—
FOREIGN STEEL. *c*	
Swedish keg	14 10—14 15
Ditto faggot	15 0 0—16
ENGLISH COPPER. *d*	
Sheets, sheathing, & bolts, *p. lb.*	0 0 9½
Tough cake ... *per ton*	84 0 0

Tile	£83 0 0
Old copper *e* ... *per lb.*	8½*d*
Yellow Metal Sheathing	8*d*
FOREIGN COPPER. *f*	
South American, in bond	—
ENGLISH LEAD. *g*	
Pig ... *per ton*	15 15—16
Sheet	16 15 0
Red lead	17 10 0
White ditto	22 0 0
Patent shot	19 15 0
FOREIGN LEAD. *h*	
Spanish, in bond	14 10—15 5
American ditto	—
ENGLISH TIN. *i*	
Block ... *per cwt.*	3 13 6
Bar	3 14 0
Refined	3 19 0
FOREIGN TIN *k*	
Banca, in bond	3 9—3 12
Straits	3 6—3 7
Peruvian (6 mo 2½ p.ct. dis.)	3 6 6
TIN-PLATES. *l*	
IC Coke ... *per box*	1 7—1 7 6
IC Charcoal	1 11 0
IX ditto	1 16 6
SPELTER. *m*	
Plates, warehoused ... *per ton*	15 5—15 15
Ditto, to arrive	15 5
ZINC. *n*	
English sheet ... *per ton*	20 10—21
QUICKSILVER *o* ... *per lb.*	3*s.*

Terms.—*a*, 6 months, or 2½ per cent. dis.; *b*, ditto; *c*, ditto; *d*, 6 months, or 3 per ct. dis; *e*, 6 months, or 2½ per cent. dis.; *f*, ditto; *g*, ditto; *h*, ditto; *i*, ditto; *k*, net cash; *l*, 6 months, or 3 p. ct. dis.; *m*, net cash; *n*, 3 months, or 1½ p. c. dis.; *o*, ditto, 1½ dis.

* Cold-blast, free on board in Wales.

REMARKS.—Welsh bar-iron may still be quoted at 4*l.* 15s. per ton, free on board at the port, with rather more enquiry. Notwithstanding the favourable reports which have reached us from Glasgow of the state of the pig-iron market there, we can report no improvement; on the contrary, holders of makers' scrip manifest the same anxiety to be relieved from its responsibility. Sales have been made during the week at 42s. for mixed numbers, and to-day 42s. 6d. is asked. Considerable transactions are reported in spelter, and we quote the price firm, at 15*l.* 15s.

MONTHLY REPORT.—IRON.—English bar continues in limited demand, and is to be had easily at 4*l.* 15s. per ton, free on board in Wales. In Scotch pig iron there has been nearly an entire absence of speculative business during the month, and the market closes at 42s. to 42. 6d. per ton for mixed numbers, free on board at Glasgow, and 44s. for No. 1 Gartsherrie. Swedish iron and steel are in moderate request.

COPPER AND TIN are without alteration.

TIN PLATES are still in good demand, with rather a better supply of stock, and prices are easier.

LEAD is in fair demand, and prices are a shade higher.

SPELTER has been extremely flat until within the last week, when a good demand sprung up, and the price has advanced to 15*l.* 15s. per ton—at which sales of Silesian have been made. The stock in warehouse here is 3500 tons, against 2780 tons at this period last year.

GLASGOW, Nov. 8.—There has been rather a better demand this week, chiefly of a speculative kind, which has occasioned a rise in the price. Yesterday, sales of mixed Nos. were made, at 43s. 6d., cash. To-day the feeling is not quite so firm, and the price may be quoted at 43s. to 43s. 6d.

BIRMINGHAM, Nov. 8.—The iron trade of South Staffordshire and the districts contiguous is reported to be improving—the prices fixed upon at the last quarter-day being maintained with great firmness. The pitmen who turned out a few weeks ago are now generally employed, and, as far as present appearances can be depended upon, the differences which existed between masters and men have been satisfactorily adjusted. The price of coal remains high, and now winter has set in, severely for the period, there is little probability of a reduction.

EXPORTS OF METALS TO ALL INDIA FROM LONDON AND LIVERPOOL,

FOR THE FIRST TEN MONTHS OF 1848 AND 1849.

Metals.		1848.	1849.	In. in 1849.	Dec. in 1849.
Spelter	*Tons*	2720	3687	967	—
Copper		2668	5223	2365	—
Iron, British		16988	29538	12550	—
Ditto, Foreign		272	1841	1569	—
Tin-plates	*Boxes*	3411	12871	9460	—
Lead	*Tons*	591	2905	2314	—
Steel		196	921	725	—
Quicksilver	*Bottles*	25	247	222	—

MANUFACTURE OF IRON DIRECT FROM THE ORE—*(From a Correspondent).*—Mr. M. Smith Salter, of New York, has just obtained a patent for an invention, which, it is believed, is destined to have a most important influence upon the useful arts of life, and the industry of the country, and the world; it is a new method of making iron, direct from the ore, with anthracite or bituminous coal, by a single process. By means of this remarkable invention Mr. Salter proposes to make wrought iron at *less than half the usual cost.* His furnace has three combined chambers, one above the other, and all actuated by the same fire. The upper chamber is used for deoxidizing the ore—impurities, such as sulphur, &c., being carried off at a low temperature; the middle chamber for fluxing and working, and the lower chamber for reducing and finishing. The metal is taken from the last named to the hammer or squeezers. The whole time occupied in this process, from the time the ore is put into the furnace until finished by the hammer, is only two hours! One of Mr. Salter's furnaces is now in operation at Boonton, and I have a specimen of iron from it, which is of the very best description. Perhaps a more important invention—if fuller experiments should verify present anticipations—has not been introduced in many years. Its effect upon the production and consumption of iron must be immense.

QUEBEC MINING COMPANY—LAKE SUPERIOR.—Capt. O. H. Matthews, the agent for the company, arrived in town during the past week with reports of a highly satisfactory nature. The more particular object of his visit to this country, we are given to understand, is that of making definitive arrangements for extending the sphere of operations, a vast additional extent of mineral ground having been secured. The present company take up a majority of the shares, and subscribe the required capital, several parties in London being also shareholders. We have been favoured with a sight of the testimonial to Capt. Matthews, presented to him by the officers and miners of the establishment, referred to in our last Number; it consists of an elegant claret jug and salver, with an appropriate inscription. The jug is unique, has a steam-engine with "stack" on the lid, or cover, and a section of a mine, with the pick and gad, and other emblems associated with mining enterprise. The piece of plate is being executed by Mr. B. Smith, of Duke-street, Lincoln's Inn-fields; and, judging from the works produced at this establishment, we doubt not but that it will do equal justice to the taste heretofore manifested, at the same time that it will be pleasing to our Canadian friends, who will thus have the opportunity of judging of our manufactures in works of art of this nature.

THE KILBICKEN (CLARE, IRELAND) SILVER AND LEAD MINING COMPANY.—In the Vice-Chancellor's Court, yesterday, in the matter of the winding-up Acts of 1848 and 1849, and this company, an order of reference for winding-up and dissolving this company was made upon the petition of Mr. Henry Crockford—the particulars of which appeared in last week's Journal. Mr. Hetherington supported the petition.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.

Bank Stock, 7 per Cent., 198	Belgian, 4½ per Cent., —
3 per Cent. Reduced Ann., 91¾ ⅞	Dutch, 2½ per Cent., 53¾
3 per Cent. Consols Ann., 92¾ 3 ⅛	Brazilian, 5 per Cent., 83½
3½ per Cent. Ann., —	Chilian, 6 per Cent., 94 5
Long Annuities, 8⅝	Mexican 5 per Cent., ex Coup., 26¾ ⅞
India Stock, 10½ per Cent., 258	Russian, 5 per Cent., 107½
3 per Cent. Consols for Acc. 92⅞ 3 ⅛	Spanish, 5 per Cent, 16⅝ ¾
Excheq. Bills, 1000*l*., 1½d. 48 6 5 8 pm.	Ditto 3 per Cent., 34½

MINES.—There has been rather more than an average amount of business transacted this week, and our share market generally appears firm.

In Devon Great Consols we find several transactions have been done at less than our former quotations, although we are advised that the mine in some important point has improved—particulars of which we hope to give in our next.

An improvement has been made at Mary Ann in the 50 fm. level, south of Pollard's shaft, the lode producing about 8 cwts. per fm.

Camborne Consols have been done at an advance, arising from a continuance of the recent discovery of silver.

Carn Brea, Condurrow, Mary Ann, North Pool, Trelawny, South Frances, Levant, and South Tolgus, are among the shares sought for.

Enquiries have also been made for shares in the Worthing Mine, South Australia.

Bedford United shares have been in request during the week, and a great many have changed hands. From the sales of copper ores which have taken place during the past two months, we calculate a profit of full 500*l*. per month has been made, and as the balance in hand is 550*l*., after payment of last dividend, we may fairly expect another dividend of from 5s. to 6s. will be made at the next meeting, which we understand will be held during the present month.

Tincroft is stated to fully maintain the position so favourably represented at the late meeting.

At Tamar Consols, we learn that some very rich silver-lead ores have recently been discovered, tending considerably to enhance the returns in value.

Mendip Hills is reported to be progressing rapidly towards a profitable and permanent standing, inasmuch that the smelting department is now in full and satisfactory operation.

At Alfred Consols, we learn that the improvement noticed last week is more than confirmed. The lode is the whole width of the shaft, and producing upwards of 8 tons per fm., estimated worth from 40*l*. to 50*l*. per fm., and the lode in the 60 is producing about 5 tons per fm.

At Holmbush, we are pleased to find that the flap-jack lode continues good, producing 6 tons per fm.; and the cross-cut in the 120 can be driven from 10 to 12 fms. per month, the ground firm without timber. We hope Holmbush will again resume her position as a dividend mine.

Bryn-arian shares we hear have been done, and still in demand, in consequence of improvements in Pensarne lodes; the 10 fm. level east is improved.

At the East Wheal Rose meeting, a dividend of 25*l*. per 1-128th share, amounting to 3200*l*. was declared; a profit of 3188*l*. was made during that period, and a balance of 2705*l*. 2s. carried to credit of next account.

At the Wheal Spern Consols meeting, a balance of 377*l*. 14s. 10d. was found in favour of the mine, and a dividend of 30s. per share declared, leaving to credit of next account, 185*l*. 4s. 10d.

At the Balleswidden meeting, the accounts showed a profit of 727*l*. 15s. 10d. on the two months, and a dividend of 7s. per share, amounting to 568*l*. 8s. was declared, leaving a balance of 175*l*. 9s. 11d. to next account.

At the South Wheal Frances meeting, the accounts showed a profit of 1542*l*. 10s. 7d. for the two months, which, added to the amount brought from last account, gives a balance of 2199*l*. 14s. 8d. in favour of the company. A dividend of 10*l*. per 124th share was declared, leaving to credit 959*l*. 14s. 8d. The mine looks well; 35,000*l*. worth of ore is now discovered, as we are advised, through the zeal and energy of Capt. Pryor, who has been most indefatigable in his exertions for the benefit of the shareholders. We also learn that Capt. Pryor has received an appointment in Wales, and resigns his present agency, to the regret of the shareholders generally.

At the Cwm Erfin meeting, a call of 10s. per share was found necessary, and responded to immediately by some of the shareholders.

At the Lelant Consols meeting, the accounts showed a balance of 97*l*. 4s. 6d. against the adventurers, and a call of 3*l*. per share was made. It appears that a profit has been made on the operations; but some necessary work having been performed, and some old liabilities discharged, the debt had been increased.

At the Wheal Mary Emma meeting, there was shown a balance against the mine of 56*l*. 4s. 8d., when a call of 2s. 6d. per share was made.

Shares in the following mines have changed hands:—Devon Great Consols, East Wheal Rose, West Caradon, South Wheal Frances, West Providence, East Buller, East Pool, Bedford United, Trehane, South Tamar, East Tamar, Callington, Condurrow, East Wheal Crofty, Tincroft, Stray Park, Kirkcudbright, Camborne Consols, &c.

In foreign mines, the transactions have been rather limited. The principal have been St. John del Rey, Copiapo, United Mexican, Alten, Imperial Brazilian, National Brazilian, and Australians.

The usual monthly dispatches have been received by the Copiapo Mining Company. The report for the month of July, in reference to the copper mines of Checo, San Pedro, and La Compania, furnishes no alteration of importance, if we except a slide, which disturbed the lode in the 40 fm. level, east of Herman's shaft, in the former mine, but now pursuing its regular course. The produce for July from Checo and San Pedro is about the usual quantity, 57 tons.—Silver Mines: At Al Fin Hallada the lode continues rich and productive; in taking down about 7 varas (Spanish yards) of the lode, which had been desued, about 15 tons of ore, estimated at 8000*l*. value, has been broken, and the lode continuing equally good. In the adit level, at San Jose del Carmen, they have a good lode, producing from 400 to 500 marcs per cajon in some points, but averaging about 100—other points are equally good. The Merceditas, Carmen Alto, Colorada, Santa Ana, and Transito, are all represented in a productive or satisfactory position. The Gold Mines hold out considerable encouragement for efficient development; but the absence of an amalgamation establishment in the immediate locality appears to be an obstacle to any very profitable returns of the present quality of the ores; the carriage to a distant part being a very heavy drawback. A remittance of 1000 marcs of plata pina may be expected by the next steamer, or per *Sion*, which vessel was then in course of loading with copper ore.

Barossa Range ores by the *Royal Archer*, of about 40 tons, sold to Mr. Benjamin Smith, of Bow Common, realised 16*l*. 16s. per ton, averaging about 22½ per cent. This is the first parcel sold by these mines.

From the Linares Mines further advices have been received, the progress of forking the water still continues satisfactory, and the portion of the lodes in view are still highly encouraging.

The following arrivals of specie have taken place since our last:—The Peninsular and Oriental steam-ship, *Pacha*, arrived on the 4th, bringing on freight eight packages of specie. The steam ship, *Sultan*, arrived on the 5th, having on freight 72 packages of specie, value 68,000*l*.

MINING IN FRANCE.—According to the last accounts from St. Dizier, it appears that business is gradually improving, and several extensive orders have been given for iron, which has caused many of the forges to be in full work. From the coal districts, also, reports are more favourable to mining enterprise.

The following official return of the progress of steam-vessels in the French navy will, no doubt, be read with interest. Many of them are furnished with English machinery, and, generally speaking, they employ a certain portion of English coal mixed with the French and Belgic; but for the mail steam-packets the English only is used. In commission, there are nine frigates of 4300-horse power, averaging 477 each; 11 corvettes, 2260-horse power, averaging 205 each; and 34 despatch boats, 4470-horse power, being an average of 130-horse power each. In reserve, 11 frigates, 4950-horse power, averaging 450 each; seven corvettes, 2060-horse power, nearly 300; and 13 despatch boats, 2060-horse power, averaging 158 each; besides there are several smaller steam-vessels. In the British navy, consisting of 671 ships of war, there are 180 steam-vessels, of from 200 to 800-horse power each. This number of steam-vessels consumes annually an immense quantity of coal, and the French Government is very anxious to reduce the duties on the importation of British coal for the benefit of the national industry and the public at large; but there is a strong opposition on the part of the monopolists, who have influence in the Legislative Assembly against any alteration in the tariff on the import duties of foreign iron, machinery, and coals, which is however expected, as soon as affairs become more settled in France, will be ultimately passed by Government.

IN BELGIUM, mining operations are more cheering. Several considerable orders have been given for rails, &c., on the conditions stated in a former Journal, by the parties taking a certain portion of shares from the different railway companies in return for their *materiel*.

CALEDONIAN RAILWAY.—There has been undoubtedly a vast depreciation in the market value of the shares in this company, arising from misrepresentation and speculation, by parties who have little knowledge of the concern, no real interest in it, and whose only object has been profit on the shares at whatever injury to the general property. That this railway is in an improving condition, the following returns testify:—The receipts from 1st July to 28th Oct., inclusive, 1848, when 141 miles were open, were 85,049*l*.; and for the same period of 1849, with 158 miles, 113,304*l*.—showing an increase in the latter of 28,255*l*. in the receipts, with an additional 17 miles only; the receipts per mile being, in 1848, 603*l*. 3s. 8d.; in 1859, 717*l*. 2s. 3d.—being an increase of 113*l*. 18s. 7d. per mile, being 19 per cent., or 33½ per cent., on the aggregate receipts for 17 weeks. Under these circumstances, we think holders should be cautious how they part with their shares.

PRICES OF MINING SHARES.

BRITISH MINES.

Shares.	Company.	Paid.	Price.
1000	Abergwessin	9	.. 9
1024	Alfred Consols	8¾	.. 11
1000	Antimony&Silver-Lead	5	.. —
1024	AshburtonUnited Mines	8½	.. 12
1624	Balleswidden	9	.. 18
128	Balnoon Consols	42½	.. 50
1000	Barristown	5¼	.. 1½ 2
3650	Bawden	¼	.. ½ ¾
4000	Bedford	2½	.. 3½ 4½
1280	Birch Tor & Vitifer	10½	.. 6½ 7
8000	Blaenavon	50	.. 10
5000	Bilsland Consols	1	.. 5½
100	Botallack	182	.. 30
120	Brewer	5	.. 2½
256	Brimpts Tin	2½	.. 2½
10000	British Iron, New, regis.	12	.. 8
—	Ditto ditto, scrip	10	.. 10
2400	Bryn-Arian	2	.. 6 6½
128	Budnick Consols	52½	.. 25
1000	Callington	22	.. 7 8
1000	Camborne Consols	7	.. 5½ 10
20000	Cameron's Steam Coal	7	.. 1
256	Caradon Copper Mine	9½	.. 1½
256	Caradon Mines	22½	.. 10
256	Caradon United	24	.. 5 8
256	Caradon Wh. Hooper	21	.. 4½
1000	Carn Brea	15	.. 105
3000	Carthew Consols	1½	.. 7
114	Charlestown	220	.. —
500	Comblawn	5½	.. 4½
128	Comfort	45	.. 86 100
256	Condurrow	20	75 80 85
2560	Cook's Kitchen	14	.. 2½ 3
1000	Coombe Valley Quarry	4½	.. 5
1000	Copper Bottom	1½	.. 6½
900	Court Grange	7	.. 10
212	Craddock Moor	23½	.. 5
128	Creeg Braws	120	.. 30
500	Cubert Mine	12½	.. —
1000	Cwm Erfin	3½	.. 3 3½
7100	Derwent	8½	.. 5
845	Devon&CourtenayCon.	7½	.. 1½
1024	Devon Great Consols	1	185 190
1000	Dhurode	2	.. 5
182	Dolcoath	30	.. 15
2560	Drake Walls	5½	.. 3
10000	Durham County Coal	45	.. 9
3000	Dyngwm	10	.. 10 12
512	East Alvenney	5½	.. 6
2500	East Birch Tor	3	.. 3
1024	East Buller	1	.. 3¾
112	East Caradon	47	.. 47
2048	East Crowndale	6½	.. 4
128	East Pool	15	75 85 90
9000	East Tamar Consols	½	.. ¼ ½
258	East Tolgus	1½	.. —
94	East Wheal Crofty	125	.. 65
128	East Wheal Rose	50	630 650
—	East of Scotland Iron Co.	5	.. 1½
123	East Wheal Seton	14	.. 10
1280	Esgair Llee	1½	.. 4 4½
248	Exmoor Wh. Eliza	6	.. 6
494	Fowey Consols	40	.. 45
1024	Freidd Llwydd Mines	1½	.. 3½
4000	Gen. Mining Co. for Irel.	1½	.. 1½
256	Gonamena	44½	.. 16
128	Goonvrea	4	.. 2
256	Grambler & St. Aubyn	80	.. 10
100	Great Consols	1000	220 240
512	Gt. Wh. Rough Tor Con.	24½	.. 18 20
6000	Growa Slate Company	5	.. 5
6000	Heignston Down Con.	1½	.. ¾
1500	Hennock Silver-Lead	1s	.. 2
4500	Hennock Iron & Tin	21s	.. 21s
256	Herodsfoot	27	.. 12 13
10000	Hibernian	12½	.. 1½
1000	Holmbush	22	.. 6
1024	Kingsett and Bedford	1½	.. 3¾ 4½
787	Kirkcudbrightshire	8½	.. 2½
2048	Lamberooe Wh. Maria	8	.. 2½
252	Lanarth Consols	—	.. 4
128	Lelant Consols	90	.. 40 50
160	Levant	—	.. 180
1000	Lewis	17	.. 9½ 10
1000	Llwynmalees	8	.. 5½ 8
3600	Llynvi Iron	50	.. 50
253	Lostwithiel Consols	23	.. 10
6000	Marke Valley	10	.. ¾ 1
5000	Mendip Hills	3½	.. 2½ 3
128	Metha	34	.. —
20000	Mining Co. of Ireland	7	.. 3¾
256	New East Crowndale	3¾	.. 2½
100	North Pool	45	.. 530
140	North Roskear	5½	.. 150
262	North Wh. Leisure	1½	.. 2
256	North Wheal Basset	10	10 12 15
15000	Northern Coal Co.	23	.. 2
12	Old Wheal Prosper	—	.. 75
128	Par Consols	55¾	.. 650
1248	Pengelly Tin	1	.. 1
8000	Pennant & Craigwen	2½	.. 2
1024	Penzance Consols	22s 3d.	.. 4
512	Plymouth Wh. Yeoland	6½	.. 6
200	Polsaith Consols	5½	.. 4½
2500	Rhoswiddol&Bacheiddon	10	.. 10
10000	Rhymney Iron	50	.. 13
10000	Ditto New	7	.. 6½
1000	Rosewall Hill	1	.. 5

BRITISH MINES—*continued.*

Shares.	Company.	Paid.	Price.
256	Rosewarva Mines	—	.. 12
2048	Runnaford Coombe Tin	½	.. 5
9000	South Tamar	½	.. 1½ 2
128	South Caradon	5	.. 200
1100	South Dolcoath	5	.. ½ 1
256	Sth. Friendsh. Wh. Ann	30	.. 28 30
256	South Molton	5	.. 12 13
256	South Tolgus	16	.. 60 65
256	South Trelawny	28½	.. 6
2000	South Wales Mining Co.	½	.. 1 1½
128	South Wheal Basset	20½	380 400
124	South Wh. Frances	160	280 300
256	South Wh. Josiah	1½	.. 5 6
1000	South Wh. Maria	2½	.. 1½
10000	Southern&Western, Irish	2½	.. 4
280	Spearne Moor	30	.. 40
94	St. Ives Consols	—	.. 80
128	St. Michael Penkivel	5	.. 10½
999	St. Minver Consols	1	.. 6
1000	Stray Park	43	21½ 22 23
9600	Tamar Consols	3	.. 7½ 8
10240	Tavistock Consols	¼	.. ½ ¾
1024	Tavy Consols	6½	.. 1½
6000	Tincroft	7	.. 12 12½
58	Tokenbury	170	.. 10
120	Tolcarne	8	.. 10
256	Tregorden	3½	.. 4½
256	Trehane	1½	.. 28
5000	Treleigh Consols	6	.. 3½ ¾
2000	Trenance	3	.. —
96	Tresavean	10	.. 95
120	Trethellan	5	.. 15 17
120	Treviskey and Barrier	130	150 160
1000	Tyllwyd	2	.. 2½
200	United Mines	50	.. 155
256	Wellington Mines	25	.. 35
128	West Buller	10	.. 375
256	West Caradon	20	105 110
512	West Fowey Consols	40	.. 12
—	West Par Consols	2½	.. —
512	West Providence	9	.. 28 30
200	West Seton	45	180 190
120	West Trethellan	5	.. 5
512	West Wheal Frances	1½	.. 3
256	West Wh. Friendship	9	.. 8
3725	West Wheal Jewel	12	.. ¾ 1¼
256	West Wheal Tolgus	80	.. 7½ 10
256	West Wheal Treasury	19	.. 10 15
1024	Whiddon Mines	4¾	.. 2
5200	Wicklow Copper	5	.. 8½ 8¾
107	Wheal Adams	130	.. 80 100
1000	Wheal Agar	—	.. 6
256	Wheal Albert	10	.. 1
240	Wheal Anderton	28	.. 5
128	Wheal Ann	—	.. 50½
512	Wheal Anna Maria	7	.. 4
120	Wheal Bal	5½	.. 10
256	Wheal Benny	14½	.. 2
1024	Wheal Bray	10	.. 10
256	Wheal Biencowe	21	.. 12
232½	Wheal Calstock	9	.. 20 25
256	Wheal Fortescue	15	.. —
388	Wheal Franco	27	.. 11 12
100	Wheal Henry	—	.. 35
1024	Wheal Lawrence	2½	.. 2½
112	Wheal Margaret	79	225 230
512	Wheal Mary Ann	5	.. 27 27½
5000	Wheal May	½	.. ¼ ½ ¾
360	Wheal Oak	25½	.. 5
3000	Wheal Penhale	1½	.. 6
210	Wheal Prospect	4	.. 7
120	Wheal Reeth	41	.. 150
128	Wheal Rose	60	.. 3
198	Wheal Seton	214	.. 250
180	Wheal Sisters	35¾	.. 5
512	Wheal Sophia	5½	.. 7
128	Wheal Spearne	10	.. 68 70
128	Wheal St. Ann	30	.. 35
550	Wheal Trescoll	10½	.. 19 20
260	Wheal Trelawny	7¾	.. 84 86
256	Wh. Tremaine (St. Ervan)	9½	.. 2½
1024	Wheal Tremayne	9¾	.. 5½
267	Wheal Tryphena	140	.. 30
1000	Wheal Vincent	2¾	.. 7
128	Wheal Vlow (Perranz.)	1½	.. 1½
184	Wheal Vyvyan	—	.. 60

FOREIGN MINES.

Shares.	Company.	Paid.	Price.
5000	Alten Mining Company	14½	.. 2½ 2¾
15000	Asturian Mining Co.	15	.. 2½
20000	Australian	8	.. 5¾
6000	Barossa Range	1½	.. 1¾ ½
3000	Bolanos	150	.. —
2000	Ditto Scrip	15	.. —
10000	Brazilian Imperial	23	.. 3 4
12000	Cobre Copper Co.	40	24 25 26
10000	Copiapo Mining Co.	14	.. 4 4½
20000	General Mining Ass'n.	20	.. 10½
4000	Guadalcanal	5	.. 2 2½
5000	Kinzigthal Mining Ass.	2	.. 1¼
5051	Mexican Company	59½	.. —
2000	Mexican & South Amer.	8	.. 1 1½
5000	National Brazilian	30	.. 4
104000	N. Brit. Australasian	1	.. ¾
7000	Royal Santiago	10	.. 5½
11000	St. John del Rey	15	.. 10 10½
13174	United Mexican ... Av.	28½	.. 3¾ 4½
10,000	Worthing (S. A.)	2	.. 2½

*** *We should feel greatly obliged by agents, or others interested, furnishing us with such corrections for our Share List as we may not have received through our usual channels of information—our object being, to present as accurate a list of prices as can be obtained—to procure which, we solicit the aid of correspondents in general.*

RAILWAY TRAFFIC RETURNS.

Names of Railways.	Length. 1849	Length. 1848	Present actual cost.	Price p. share	Div. 1848	Traffic Returns, 1849	Traffic Returns, 1848
Aberdeen	33	16	1,000,547	12½	—	£ 560	£—
Belfast and Ballymena	37½	37½	514,968	19½	5*	439	414
Birkenhead, Lancashire, & Chesh.	19	15	1,088,804	37	5†	596	785
Bolton, Blackburn, & West Yorksh.	14	—	786,384	5¾	—	401	243
Bristol and Exeter	85½	75½	2,060,490	53	—	3656	--
Caledonian	154	141	5,149,320	12¾	3	6480	5001
Chester and Holyhead	84	59½	3,358,217	10¾	4	1536	1468
Dublin and Drogheda	35½	35½	778,565	28	—	924	773
Dublin and Kingstown	7½	7½	395,915	—	—	1209	1295
Dundee, Perth, & Aberdeen Junc.	47½	47½	544,554	13½	6½	1010	911
East Anglian (Lynn to Ely)	91½	55½	1,247,446	1¼	—	826	743
East Lancashire	75½	24	2,628,519	14	5	2834	1548
Eastern Counties and Norfolk	322	295	12,027,069	7½ 7	—	14595	14315
Eastern Union	78	50½	1,782,703	13	—	1574	1410
Edinburgh and Glasgow	57½	52½	2,923,199	30¼	6	3458	3477
Edinburgh and Northern	78	34	2,241,276	10½	2	—	1814
Glasgow, Paisley, and Ayr	102½	74	2,574,330	59	8	2918	2606
Glasgow, Paisley, & Greenock	23	23	852,846	16	2	989	916
Gt. Northern & East Lincolnshire	143	—	5,138,756	7½	5†	2847	—
Gt. Southern & Western, Ireland	168½	110½	3,552,589	28½	6†	4091	3441
Great Western	230½	206½	11,867,042	62	6½	19409	18707
Lancaster and Carlisle	90	70	1,476,102	50	4½	3109	2107
Lancashire and Yorkshire	206½	127½	10,063,862	61	5¾	11814	10347
Liverpool, Crosby, & Southport	13	—	84,455	3¾	—	105	79
London and North Western	478	428	26,251,635	113¾	7	40165	39636
London and Blackwall	5½	4	1,299,675	3¾	1-12	653	577
London, Brighton, & South Coast	170	162½	6,502,600	73¾	2½	10266	8944
London and South-Western	220½	194	7,874,259	31½	5½	8959	8607
Londonderry and Enniskillen	14½	14½	185,739	16	—	139	—
Manchester, Sheffield, & Lincolnsh.	157½	94½	6,598,260	20½	5	4733	2776
Midland Company	471	423½	15,133,779	47½	5½†	22321	21452
Midland Great Western (Irish)	50	36½	725,332	22½	4†	1367	1144
Monklands	36	—	486,245	—	6	774	—
North British	122	83	3,649,055	11¾	4½	3246	2512
Scottish Central	45½	—	1,364,228	17	7	1256	1097
Shrewsbury and Chester	43	23	969,618	12	5	1468	1254
Shropshire Union	30	—	—	2 1½	—	321	—
South Devon	57¾	29	1,909,232	6	5	1432	1248
South-Eastern	189½	165½	8,666,007	18½	5½	10862	9081
Taff Vale	38	40	879,110	—	7½	2137	2019
Ulster	36	36	723,829	45½	—	818	878
Waterford and Limerick	25	—	512,894	—	—	—	—
West Cornwall	13	—	—	—	—	282	311
Whitehaven Junction	12	12	150,879	9½	3	193	168
York, Newcastle, & Berwick	290½	242½	6,827,849	17½	7	14223	13652
York and North Midland	256	234	4,983,618	20 19¾	7	6863	7675

NEW IRISH RAILWAY.—There is every prospect that the line of railway from Tipperary to Waterford will be shortly undertaken. The directors have entered into treaty with an eminent and wealthy English contractor, who is now in Tipperary, inspecting the line.—*Clonmel Chronicle.*

SHIPBUILDING IN THE PORT OF SUNDERLAND.—The number of ships on the stocks ready for launching, and in the course of being built, is 87. Many of these are of the burthen of 400, 500, 600, and 700 tons, and classed A 1, 8 years, 10 years, 12 years, and 13 years; and this in spite of the prophesied impending ruin of navigation law repeal!—*Sunderland Herald.*

JOINT-STOCK BANKS.

Shares.	*Companies.*	*Paid.*	*Div. p. cent.*	*Price.*
22,500	Australasia	£40	£3	£24½
20,000	British North American	50	6	40½
20,000	Colonial	25	5	6½ 6½
20,000	Commercial of London	20	6	20½
60,000	London Joint-Stock	10	6	17½ 17½
40,000	London and Westminster	20	6	25½
10,000	National Provincial of England	35	5	36½
20,000	National of Ireland	22½	6	18½
20,000	Provincial of Ireland	25	8	39½
10,000	South Australia	22½	—	17½ 18
20,000	Union of Australia	25	6	26½ 26¾
60,000	Union of London	10	6	11½

THE LEAD TRADE.

In one or two of our recent Numbers we adverted to the improving aspect of this important branch of the trade of this country. We are now glad to report that our anticipations have been realised, and that an advance of 10s. per ton has been established in the price of pig-lead.

At the periodical sale at Holywell, on Thursday (when a large quantity of ore was brought forward), the biddings were most spirited, and the whole quantity found buyers at improved prices.

As this improvement in the trade is mainly attributed to the large demand that has arisen for export this year to the United States of America, it may be serviceable to those of our readers, who are interested in this metal, to learn that we have been informed by an intelligent correspondent on the other side, that the production of the mines in the United States has so materially fallen off, while the amount of consumption has so greatly increased, that they will require an importation during the next year of at least 15,000 tons to meet the wants of the country. Such an export in the present state of the stocks here must have the effect of producing a considerable advance in the price of lead.

SALES OF ORES.

The following mineral and capel stuff from the mines in New Granada were disposed of by tender, by Messrs. Powles, Brothers, and Co., in London, on the 6th inst.:—

27 cwts. of mineral, at .... £186 13 4 per ton.
16 cwts. of capel stuff, at .... 233 0 0 "

LEAD ORES

TICKETINGS FOR ABOUT 100 TONS (20 CWTS.) NEWTONARDS LEAD ORE.

Douglas, Isle of Man, November 3.

Bidders.	*Price per Ton.*
Thomas Somers–Bristol	£8 0 0
Sims, Willyams, and Co.—Llanelly	8 18 6
Combmartin Smelting Company—Newport	9 0 0
Tamar Smelting Company—Tavistock	9 1 6
Newton, Keates, and Co.—Liverpool	9 11 0
Walker, Parker, and Co.—Chester	9 11 0
Penpoll Smelting Company	9 12 6*
Messrs. R. Michell & Sons	9 12 6*

* Owing to an error in the form of these biddings, they could not be taken into consideration.

Mines.	*Tons.*	*Price.*	*Purchasers.*
Sold at the Mine.			
East Wheal Rose	16	£15 7 6	Treffry & Michell.
ditto	7	9 10 0	Treffry.
ditto	15	12 15 0	Newton, Keates, & Co.
ditto	13	15 5 6	Tamar Company.
Sold at Aberystwith.			
East Logylas	60	£10 5 0	Newton, Keates, & Co.
ditto	60	10 4 0	Walker, Parker, & Co.
Cwmystwith	30	9 17 6	Newton, Keates, & Co.
ditto	30	9 17 6	Walker, Parker, & Co.
Sold at Isle of Man.			
Newtonards	50	£ 9 11 0	Newton, Keates, & Co.
ditto	50	9 11 0	Walker, Parker, & Co.
Ticketings at the White Horse Hotel, Holywell, Nov. 8.			
Maesyrerwddu (Talargoch)	64	£10 2 6	Newton, Keates, & Co.
Coetia Lys	28½	10 17 6	Walker, Parker, & Co.
Brynford Hall	1	10 5 0	Mather & Co.
Hendre	70	10 1 0	ditto
ditto	30	10 2 6	Walker, Parker, & Co.
Deep Level (Halkin Mines)	84	10 1 6	Mather & Co.
Fronfownog	60	10 0 6	Newton, Keates, & Co.
ditto (Round)	20	13 6 6	Walker, Parker, & Co.
Aberduna	3	9 16 0	Newton, Keates, & Co.
Talacre	100	11 14 0	Mather & Co.
Maesysafn	50	10 0 0	ditto
Pant Celyn	36	11 14 0	Walker, Parker, & Co.
Arkansas	13	19 15 6	Newton, Keates, & Co.
ditto	7	18 15 6	ditto
Barristown	22	11 2 6	ditto

BLACK TIN

Mines.	*Tons.*	*Price per Ton.*	*Purchasers.*
Heignston Downs	3¾	33 10 0	Williams and Co.
ditto	8 *cwts.*	27 0 0	Calenick Smelting Co.
Wheal Anderton	4	43 7 6	Daubuz and Enthoven.
ditto	¾	44 0 0	Calenick Smelting Co.
ditto	¾	36 0 0	ditto.

COPPER ORES.

Sampled Oct. 24, and Sold at Andrew's Hotel, Redruth, Nov. 8.

Mines.	*Tons.*	*Price.*	*Mines.*	*Tons.*	*Price.*
Carn Brea	98	£ 5 4 6	West Wh. Treasury	72	£5 10 6
ditto	92	10 7 6	ditto	32	7 8 6
ditto	86	5 2 6	West Wh. Buller	71	5 19 0
ditto	79	7 13 0	ditto	42	9 3 6
ditto	71	4 18 0	ditto	34	4 5 6
ditto	70	7 17 6	ditto	4	3 17 6
ditto	65	6 1 0	Wh. Agar	66	4 1 6
ditto	58	10 7 6	ditto	33	6 16 6
ditto	54	8 14 6	ditto	32	5 3 6
ditto	53	9 5 6	Wh. Tremayne	80	4 2 6
ditto	40	2 7 6	ditto	44	1 13 6
Tywarnhayle	92	3 19 0	Wh. Mary	55	4 11 6
ditto	90	3 9 6	ditto	47	6 7 6
ditto	70	2 10 6	South Wh. Fortune	46	5 4 6
ditto	37	2 16 0	ditto	20	2 6 6
ditto	32	8 9 6	Alfred Consols	46	2 5 6
Nancekuke	59	3 9 6	ditto	14	6 1 6
ditto	17	1 5 6	Wh. Vyvyan	25	5 4 0
Par Consols	102	6 7 0	ditto	24	1 17 6
ditto	96	7 9 0	Tregollan	23	2 0 0
ditto	56	7 8 6	Wh. Rose	19	5 10 6
Levant	84	2 17 6	Lewis Mines	18	4 10 0
ditto	70	7 16 0	Treffry's Regulus	11	9 11 6
ditto	61	3 7 0	Wh. Venture	10	7 0 6
West Wh. Treasury	75	3 16 0	Wh. Fortune	2	8 3

TOTAL PRODUCE.

Carn Brea	766	£5463 10 6	South Wh. Fortune	66	£286 17 0
Tywarnhayle } Nancekuke }	397	1454 8 0	Alfred Consols	60	189 14 0
			Wh. Vyvyan	49	175 0 0
Par Consols	254	1778 14 0	Tregollan	23	46 0 0
Levant	215	991 17 0	Wh. Rose	19	104 19 6
West Wh. Treasury	179	920 8 0	Lewis Mines	18	81 0 0
West Wh. Buller	151	968 13 0	Treffry's Regulus	11	105 1 0
Wh. Agar	131	659 15 6	Wh. Venture	10	70 5 0
Wh. Tremayne	124	403 14 0	Wh. Fortune	2	16 7 0
Wh. Mary	102	551 5 0			

Average Standard.......... £102 1 0 | Average Produce 8½
Average Price per ton £5 11 0
Quantity of Ore .... 2577 tons | Quantity of Fine Copper, 209 tons 5 cwts.
Amount of Money £14,267 8 6
LAST SALE.—Average Standard.......... £104 8 0.—Average Produce.......... 7⅝
Standard of corresponding sale last month, 102*l*. 7s.—Produce, 8⅛.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
Mines Royal	398	£1987 19 6
Vivian and Sons	679	3504 10 0
Freeman and Co.	216	1269 8 6
Grenfell and Sons	272	1143 0 6
Sims, Willyams, and Co.	185	1053 19 3
Williams, Foster, and Co.	652	4464 0 9
Schneider and Co.	175	844 10 0
Total tons	2577	£14,267 8 6

NO SALE on Thursday, November 15.

Copper ores for sale on Thursday week, at the Royal Hotel, Truro.—Mines and Parcels.—Devon Great Consols, Wh. Josiah, Wh. Margaret, Wh. Fanny, and Wh. Anna Maria 1219—West Caradon 343—Fowey Consols 251—Wh. Friendship 158—Poldice 137—Bedford United 119—South Crinnis 55—Phœnix Mines 35—Wheal Maiden 30—Wheal Jewel 11.—Total quantity of ore to be sold, 2358 tons.

COPPER ORES

At SWANSEA, for sale Nov. 15.—Burra Burra 70, ditto 69, ditto 68, ditto 67, ditto 64, ditto 60, ditto 59, ditto 50, ditto 48, ditto 40, ditto 35, ditto 1.—Cobre 101, ditto 96, ditto 72, ditto 59, ditto 55, ditto 53, ditto 48, ditto 9.—Burra Burra 75, ditto 70, ditto 50, ditto 44, ditto 40.—Berehaven 140, ditto 51.—Cabral 50, ditto 46.—Ballymurtagh 66.—Aberdovey 19, ditto 2.—Total quantity of ore to be sold, 1777 tons.

NOTICES TO CORRESPONDENTS.

*** We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

ATMOSPHERIC TRACTION.—Our object is always to encourage rather than depress scientific correspondence, for the purpose of eliciting the great truths of philosophy; but when such correspondence becomes personal, it can be no longer interesting to the public, or instrumental to the advancement of science. Mr. Curr, in his last communication on Mr. Baggs's air-engine, acknowledges such now to be the position of the controversy, and we must, therefore, decline all further correspondence thereon. With respect to last week's Journal being made the vehicle of misleading its readers as to what Mr. Curr said in a previous communication, we can assure that gentleman that impartiality, to the fullest extent, is our great aim and object; and, if Mr. Weston's remarks were really a misrepresentation, we cheerfully give Mr. Curr the opportunity of refutation, by inserting that portion of his letter bearing immediately on it. He says: "I now request Mr. Weston to point out in what part of my correspondence on this subject he made the discovery of my having said, *amongst other objections*, 'that it was necessary the power exerted on the steam piston must exceed the resistance on the air piston at the *end* of the stroke of the air pump.' I deny having used an expression which can be tortured into such meaning; and had I done so, Mr. Baggs might have felt small scruple in exposing it, notwithstanding its *ridiculous absurdity*. On the contrary, whenever I have *flourished in figures*, I defy Mr. Weston to show they have been contradictory to what follows. The sum of the pressures during each stroke of the steam piston represents the power of the steam, and the sum of the resistances on the piston of the forcing pump (friction excepted) is equal to that power, however much the pressures on the steam piston, and the resistances of the air piston, may differ at different or opposite intervals of the stroke; subject, nevertheless, as to the beneficial effect, to a distinction, in case of the engine's motion being reciprocal, or rendered rotary by a fly-wheel. Therefore, unless Mr. Weston can show the reverse in any part of my communications, his representations of my objections on this point, as well as against the propulsive system generally, must stand as being either corrupt in motive or unparalleled in ignorance."

"H. C. C." (Perran).—We know of no work on assaying for copper exclusively. The last and most comprehensive publication on the subject of assay in general is Muspratt's *Plattner on the Blowpipe*, second edition, Taylor, Walton, and Maberly, Upper Gower-street. There is also Budge's *Practical Miner's Guide*, and Mitchell's *Manual of Practical Assaying*, the latter an excellent text book for persons engaged in the assay of metallic ores.

F. Glueckstadt (Christiansand).—Ores containing much magnetic iron pyrites and hornblende cannot be well dressed with water. Stamping and buddling will be but of little utility. The better ores must be picked by hand, and the inferior sort should be calcined in the open air, to free them from the sulphur and other impurities.

George Stafford (Dartford).—The art of brickmaking was carried to considerable perfection by the Greeks. Pliny informs us they made use of bricks of three different sizes, distinguished by the following names—*didoron*, or 6 inches long; *tetadoron*, or 12 inches long; and *pentadoron*, or 15 inches long. The Romans excelled in brickmaking: ample evidence remains of this, since brick structures raised at Rome 1700 years ago, still remain as entire as when first built.

"T. B." (Plympton Earle).—The Erie Canal extends from Albany on the Hudson River to Buffalo, on Lake Erie, a total distance of 363 miles. It was projected by Mr. De Witt Clinton, commenced in 1817, and finished in 1825. The water is 44 feet wide at the surface, 29 at the bottom, and 4 deep. These are generally the dimensions of the other canals in this State, and, therefore, cannot carry very heavy boats, but a less depth will suffice if the boats are not encumbered with keels, which are utterly useless in a canal. The western section, from Buffalo on Lake Erie to Montezuma on Seneca River, is 157 miles in length, with 21 locks, for a fall of 186 feet. The middle section, from Montezuma to Utica is 96 miles, with 11 locks, for a rise and a fall of 95 feet. The eastern section, from Utica to Albany, is 110 miles, with 52 locks, for a fall of 417 feet —total length, 363 miles, with 84 locks, for a total rise and fall of 698 feet. The average rise or fall of 81 of the locks is 8½ feet; the other three are regulating, or guard locks. This canal forms a channel by which the trade of the great inland waters of Lake Erie, Lake Huron, and Lake Michigan, may find access to the markets in the populous cities of eastern America and Europe.

John Stone (Edgeware-road).—Professor Mohl's Researches on the History of the Telescope will be found in the *Journal of the Royal Institution for* 1831. From this it appears that Hans Lippersley, a native of Wesel, a spectacle maker of Middleberg, in Zealand, was in possession of the invention of telescopes the 21st October, 1608.

"An Engineering Pupil" (Greenwich).—The bridge over the Trent at Burton is said to be the largest in England. It was built by Bernard, abbot of Burton, in the twelfth century. It is 1545 ft. in length, of squared freestone, strong and lofty, with 34 arches.

"Domesticus" (Boulogne).—Copper vessels, used for culinary purposes, are usually coated with tin, to prevent the food being contaminated with copper. The interior surface is first cleaned, then rubbed over with sal ammoniac, and a bit of tin rubbed over it, which instantly unites with and covers the copper. Much care is requisite in the manipulations of this process; and, independent of the tin permanently adhering to and combined with the surface of the copper, there is always a portion in excess, which fuses off the first time the pan is used for frying, or melting fat or butter. Lead is sometimes added to the tin, and occasionally a small quantity of mercury. It appears, from experiments, that the small quantity of lead thus employed can scarcely be regarded as prejudicial; and that as regards the action of acids in such cases, the tin is dissolved before the lead. The use of mercury is more objectionable.

"Miner" (Truro).—Ores of tin have been found in Galicia, and on the frontiers of Portugal, where, in the year 1787, a mine was opened, and veins, some of them 6 feet in thickness, were wrought: these veins were in granite. At Marienberg, in Germany, a mine is wrought on a lode about 6 feet thick, which runs in a similar direction to those of Cornwall. The mountains in which the tin mines of Ehrenfriedersdorf are situated contain, in a space of about 100 fathoms, a great number of parallel veins, which run in the same direction, and some of them almost in contact with one another, so that in the thickness of about 3 fathoms there are sometimes found four or five veins, the hanging side of one vein forming the ledger side of the other. These veins traverse a rock of argillaceous schist, but none of them have been wrought to any great depth. There are also tin mines at Altenberg, Geyer, and Zinnwald, which, with those just mentioned, produce about 4000 centners of metal annually. The tin mines of Platte, in Bohemia, are, as usual, in granite, and the veins traverse the rock in a direction approaching to that of east and west. In the Kaff mountain, there is a tin mine in which iron ore is found at the top of the vein, and tin at a greater depth. It has been conjectured, that were mining operations continued to a still lower depth, silver ores would be found.

"An Enquirer" (Cornhill).—The micrometer is an instrument generally applied to telescopes and microscopes, for measuring small angular distances within the field of the former, or the size of small objects within that of the latter.

"G. F." (Colchester).—Descotil prepared igniferous black platinum by the following process:—Melt platina ore with double its weight of zinc; reduce the alloy to powder, and heat it first with dilute sulphuric acid, and next with dilute nitric acid, to oxidise and dissolve out all the zinc, which, contrary to one's expectations, is sometimes difficult to do. The insoluable black grey powder contains some osmuret of iridium, united with the crude platinum. This compound acts like simple platina black, after it has been purified by digestion in potash lye, and washing with water. Its oxidising power is so great, as not only to transform the formic acid into the carbonic, and alcohol into vinegar, but even some arsenic acid from metallic osmium. The above powder explodes by heat, like gunpowder.

E. Browne (York).—Meteor steel is said to resemble in its superficial substance the wavy appearance of the best Damascus blades. It is thus composed:—24 parts of zinc, 4 of purified nickel, and 1 of silver, are put into a blacklead or other refractory crucible, the surface being covered with charcoal powder, the cover luted on, and the whole subjected to the heat, until it is fused. When melted, the mixture is to be poured into cold water, so as to render it brittle, and more easy to pound into small pieces for use.

"An Enquirer" (Walworth).—The Founders' Company of London are, by their charter from King James, authorised and directed to have the sizing and marking of all manner of brass weights, to be made, or wrought, or uttered, or kept for sale, within the City of London, or three miles therefrom. And the weights delivered to them from her Majesty's Exchequer, and now kept in their hall as their standards for the above uses, are a pile of flat brass Troy weights, from 256 ounces down to the sixteenth part of an ounce, all sealed with the Exchequer seal, and marked "C. R., crowned 1634," and a stamp of the initial letters of the maker's name. Also a set of brass avoirdupois weights, sealed and marked in like manner.

"E. T." (Sackville-street).—The precise date of the invention of making needles is not known. Our chroniclers record that "the making of Spanish needles (as the fine sewing needles were formerly denominated) was first taught in Englande by Elias Crouse, a Germayne, about the eigth yeere of Queene Elizabeth; and in Queene Maire's time there was a negro made fine Spanish needles in Cheapside, but would never teach his art to any."

"A Student" (Brighton).—Dr. Maton thus mentions tin crystals in his *Observations on the Western Counties*:—"Not far from the Gwennap mines is Huel Jewel, famous for producing tin crystals, in a substance called by the miners *growan*, which is nothing more than a granite consisting of transparent glossy quartz, a small portion of decomposing felspar, and silvery mica, partly in a decayed state. The crystals are resin coloured, and in the shape of tetahedral pyramids, being scattered, as well as some wolfram, throughout the mass."

Alfred Bloxham (Bond-street).—The composition of mirror plate, as made on the continent, is as follows:—white quartz sand, 300 lbs.; dry carbonate of soda, 100 lbs.; lime slaked in the air, 43 lbs.; and cullet, or old glass, 300 lbs.

G. Almar (Bow-street).—Nicaragua wood is the wood of the *cæsalpinia echinata*, a tree which grows in Nicaragua. It is used, with solution of tin, as a mordant, to dye a bright but fugitive red. It is an inferior sort of Brazil wood.

"A Reader" (Brompton).—The finest coral is found in the Mediterranean. It is fished for upon the coasts of Provence, and constitutes a considerable branch of trade at Marseilles. It is a calcareous substance, formed by a species of sea polypus, which construct in concert immense ramified habitations, consisting of an assembly of small cells, each the abode of an animal. Coral fishing is nearly as dangerous as pearl fishing, on account of the number of sharks which frequent the seas where it is carried on. Coral is generally of a fine red colour, but occasionally it is flesh coloured, yellow, or white. The red is preferred for making necklaces, crosses, and other female ornaments. It is worked up like precious stones.

"A Painter" (Lambeth).—Bremen or Brunswick green is a mixture of carbonate of copper with chalk or lime, and sometimes a little magnesia or ammonia. It is improved by an admixture of whitelead. It may be prepared by adding ammonia to a mixed solution of sulphate of copper.

"L. M." (Dublin).—The principal type foundries are in London, Edinburgh, Glasgow, and Sheffield.

George Grimsey (Colchester).—During the last century cobalt was found at Pengreep, at Huel Trugo, near St. Columb, Dudnance, in Illogan parish, and near Ponsmooth, in Cornwall.

Mark Lewis (Cardiff).—Polyhallite is composed of sulphate of lime, combined with water, 23·45; anhydrous sulphate of lime, 22·42; anhydrous sulphate of magnesia, 20·03; sulphate of potash, 27·70; muriate of soda, 0·19; red oxide of iron, 0·34; it is found in masses, which are either compact or present a fibrous texture, the fibres being parallel and mostly curved. It is of a brick or flesh red colour, and somewhat translucent, brittle, has a resinous or pearly lustre, taste bitter and astringent, but very faint. It is slightly acted upon by exposure to a moist atmosphere, but its solubility in water is very inconsiderable. In the flame of a candle it forms an opake brownish coloured mass, and melts instantaneously under the blow-pipe. It is found at Ischel and Aussee, in Upper Austria, in beds of rock salt, and at Hall, in the Tyrol. The mineral noticed by Leonhard, under the name of Bloedit (after the Dresden mineralogist, Bloede), as occurring at Ischel with the polyhallite, and described as being soft, of a close fibrous texture, of a colour between flesh and brick red, as transparent and brilliant, but losing both these characters by exposure, is probably only an impure variety of this species.

"T. B." (Lombard-street), inquires—Can any of your correspondents afford me any information of the names and addresses of the directors or committee of the Northern Counties Coal Company, whose offices are stated to be at 10, Agar-street, Strand, and in what part is situate their coal mines, collieries, or works?

"H. T." (Strand)—If the adveature be *really* carried on under the Cost-book System, the adventurers can only be liable for debts incurred subsequent to the last periodical meeting, and which are laid before them at the next. These meetings are usually two-monthly, and it is the *distinctive feature* of the system that every shareholder should know exactly the position of the pecuniary affairs of the undertaking. If the committee of management, purser, or other person connected with the mine, contract debts which stand over, unknown to the body of shareholders, the latter are *not liable*. This was clearly decided in the case Ricketts *v.* Bennett and another, as well as in numerous other instances. For a tolerably full exposition of the Cost-book System, we refer our correspondent to the *Mining Journal* of 13th October last.

"F. L." (Wallingford).—According to statistical accounts which have been published, the goods traffic on the Grand Junction Canal has much increased since the opening of the London and North-Western Railway. The quantity carried in 1847 amounted to 1,163,466 tons; the average annual amount of goods carried the 12 years subsequent to 1836 was 1,039,333 tons, while three years prior to 1836, before the line was opened, but 756,894 tons were moved on the canal. The dividends received by the Grand Junction Canal for the last 40 years have averaged 9*l.* 10s. 9d. per cent. per annum.

John Michell (Truro).—The dress of the Chilian miner is peculiar, and rather picturesque. He wears a very long shirt of some dark coloured baize, with a leathern apron, the whole being fastened round his waist by a bright coloured sash. His trousers are very broad, and his small cap of scarlet cloth is made to fit the head closely.

Thomas Hunter (Sunderland).—The total extent of the coal tract in the vicinity of Newcastle, Port Hunter, has not been ascertained: but the sales by the Australian Agricultural Company, in 1840, amounted to 20,000 tons. In 1845 the company had usually 10,000 tons ready on hand, the price being 11s. per ton, delivered at the works, and at Sidney 22s. per ton. The sales in 1847 amounted to 40,000 tons. The monopoly by the company having been surrendered in 1847, several works have since been opened by private speculators, and a seam of 10 feet in thickness has recently been discovered within two miles of the place of shipment, so that the company are now enabled to meet a demand of 300 to 400 tons per day, if required. There is no reason, therefore, to apprehend any deficiency of supply for the use of steamers upon this coast; and it is even supposed that the copper of South Australia might be smelted near Port Hunter with advantage, as vessels of 300 or 400 tons can lie in the port of Newcastle in perfect safety, under the end of the coal slips.

"Electricus" (Liverpool).—Zinc and iron produce a more copious current than even zinc and silver, or zinc and platinum, both in dilute sulphuric and dilute nitric acid. The plates of the zinc and the platinum pair must have a surface three times as great as that of the zinc and iron to yield the same quantity of electricity; but the intensity of the current excited by zinc and iron is smaller. If the quantity of electricity yielded by zinc and iron be 260, that by zinc and copper is 100. When the plates are connected by a wire 50 feet long, the yield by zinc and iron is 33·7, and by zinc and copper 18. The resistance of the long wires diminishes, therefore, the quantity yielded by the zinc and iron from 100 to 13, and by zinc and copper from 100 to 18. When the plates are connected by a fine wire 2000 feet long, the quantity of electricity yielded by zinc and iron, is to that furnished by the zinc and copper as 1000 is to 1678. With amalgamated iron zinc yields a much feebler current than with common iron. Gottling constructed a powerful pile with plates of iron covered with zinc on one side, and moistened pieces of cloth.

*** We should feel obliged to all pursers, captains, or adventurers, to forward particulars of meetings, &c., of the mines with which they may be connected, on the earliest opportunity, that they may be published in the Journal.

*** It is particularly requested that all communications may be addressed—

To THE EDITOR,
Mining Journal Office,
26, FLEET-STREET, LONDON.

And Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, NOVEMBER 10, 1849.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

To whatever part of the mining horizon of England we look, or from whatever side of that wide circle we receive intelligence, the evidence is equally to this point, that business is characterised by great steadiness and regularity in all its departments. We are able to testify as to the firmness of prices, and also of the vivacity of the markets generally. We believe the orders and shipments already in hand, with what, in the ordinary course of things, is on the way to us, are together of such an amount as to justify us in saying there will be a good winter trade. Commerce in general is evidently renewing in its vigour, and increasing in its extent, and the comfortable assurance is being strengthened every day, that contests and public disturbances are not the normal and habitual, but the occasional and accidental, errors of society; and also that we are as little likely now as we have been at any single period within the last quarter of a century to have the halcyon days of peace and of prosperous commerce permanently interrupted. Undoubtedly nations are as likely as individuals, when they seek to grow suddenly rich, to fall into divers snares and temptations. It is possible to accumulate wealth too rapidly. It is better to acquire it by a sustained course of activity and patience, than all at once, or, in any sense, as by a water-spout or a windfall. We are a thousand times better off when we make our way gradually, and with a full measure of pains-taking for the prizes set before us, than when we win them by a single throw of the dice; and this has been historically the character of our success in almost all the mining fields of England; and with the common results attending labours of this description, what has been thus been well got, has been also well kept. In the present abundance of money, and considering the easy terms on which it is obtainable upon competent security, it is not wholly superfluous to caution some portion of the public against the danger always connected with over-trading, and to recommend our mining friends throughout this busy island, that it is better to look to, and to cultivate a steady and a reasonably remunerative trade, than to press forward their produce, and, by its presence in the market, endanger, which it would be likely to do, the stability of prices.

The circular of the directors of the NORTH BRITISH AUSTRALASIAN COMPANY (a copy of which will be found in another column) contains a "statement of the affairs of the company at 30th June, 1848, being the date of the last balance received from the colony." We could scarcely have imagined that so little would have been done to endeavour to counterbalance the disadvantages of the property being so great a distance from home. The sole director and manager in the colony is required to send home a balance-sheet only once a year—namely, to the 30th of June! In our banking houses, and other large establishments, in the metropolis, the books are balanced every *half*-year—a system which, we think, is ten-fold more peremptory on the directory of the North British Australasian Company, inasmuch as their property is liable to such constant fluctuations, particularly in the late, and even present, unsettled state of monetary and commercial affairs of the colony, and also because the distance from home would require a more frequent valuation and adjustment of accounts. But the directors observe that they now issue the statement, "in accordance with the recommendation of the committee of shareholders, approved of at the general meeting of 28th December last." Now, if we remember rightly, that recommendation was that an extract from the manager's report should be printed and circulated *on its arrival*, and moreover that a meeting should be called—in fact, that there should be two meetings a year, instead of one. Have these recommendations, "approved of at the general meeting of 28th December last," been carried out? or has the "statement of the affairs of the company, at 30th June, 1848," only just been received? If the latter question can be answered in the affirmative, then the directory have so far acted fairly enough; but if the manager's report was received, as we believe it was, more than eight months ago, then we do not perceive how the directors can explain why the "statement" was not issued much sooner, and why they have neglected to carry out the instructions of the shareholders, whose trustees they are, by having half-yearly instead of annual meetings. The first item in the assets is a tract of land, valued at 5873*l.*; and to which the following explanation is appended within parenthesis, "valued at 10s. *only*; minimum Government rate, 20s. per acre." We would like to know for what object this remark was made? Does the manager mean to say that the land is worth at least 20s. per acre, and that this estate must be considered of double the value at which he estimates it? In our opinion the value of a thing is what it will bring; and it matters not at what other parties may fix their minimum price, if purchasers cannot be found to give it. We presume that 10s. was all that the manager would have got at the date of his valuation, the minimum Government rate notwithstanding. Under the head of "live stock," we find an item, "sheep on Rosenthal and Thane's Creek, 9670*l.* 19s.;" but no such explanation is given here—no information is given as to the *number* of sheep, or what they are valued at per head. This the shareholders are left to conjecture.

If an approximate estimate of their value could be given, some idea of their number must first have been known, otherwise the above amount cannot be depended on. Unless they were worth more than other sheep in the colony at the time, the amount stated would represent nearly 80,000, at 2s. 6d. per head. We observe there are more sheep on St. Clair estate to which the same remarks apply, as well as to the cattle and horses on the other properties. On the mining property, we find that the sum of 27,150*l.* 2s. 10d. had been expended at the 30th June, 1848; and it is valued at that price. Of this we might have nothing to complain, if we believed that no more had since been laid out, and would not continue to be so, and if we considered that the system pursued was likely to bring even a promising concern to a successful issue. Under another head we find, "balances due by sundry individuals, 8380*l.* 17s. 6d."—Why were not the directors, or the manager, as particular here as they were with regard to the first item alluded to above? It would, no doubt, have been satisfactory to the shareholders had some such remark as the following been added to this item—"amply secured," or "owing by parties of undoubted solvency and respectability." Perhaps it is *presumed* to be so.

We then come to what may be considered the most important item of the "statement"—the LIABILITIES—which amount to the large sum of 27,945*l.* 8s. 10d., the interest upon which will probably be 6 or, upon some portion, even 8 per cent. Whatever may be the case, therefore, with the assets, it is clear that, unless some change has taken place, this item must be increasing in value. Such, then, appears to have been the position of the property on the 30th of June, 1848, more than 16 months ago. Why the directors postpone the annual general meeting for so long a time after the date of their balance-sheet we cannot imagine. It would be much more rational and satisfactory were it to be held annually, in June or July, before which the manager's report of the previous year would be received. As it is, the statement just issued can give the shareholders no idea of the present value of their property, or of their liabilities. So much for Scotch management.

The members of the SOCIETY OF ARTS commenced, on Wednesday evening last, their ninety-sixth annual campaign, in the large room of the society's house, in the Adelphi, under most auspicious circumstances, the meeting being most numerously attended, the council's address of a most encouraging character, and more than usual interest was evinced in the proceedings. A number of specimens of French manufacture in bronze, china, and ivory, were exhibited upon the tables, furnished by Mr. WASS and others. Twelve new members were elected—one of them was Earl GREY, and no fewer than 60 candidates were proposed for election at the next meeting. Among them were the Right Hon. Sir JAMES DUKE, Bart., M.P. (the Lord Mayor); Sir JAMES ANDERSON (Lord Provost of Glasgow); Sir JAMES CAMPBELL, Glasgow; Mr. Sheriff NICOLL, Mr. Alderman SALOMONS, Mr. Under-Sheriff WIRE, and Mr. J. W. GILBART, F.R.S. The secretary read the address from the council, in which they congratulated the assembled members on the commencement of the ninety-sixth year of their proceedings, on their increasing means of usefulness, and the cordiality with which their exertions for public good was met on all sides. Their ordinary revenue had increased in seven years from 800*l.* to 1800*l.*, the whole of which was directly expended in the promotion of arts, manufactures, and commerce. It was a remarkable feature in the present state of the society, that no more money was expended on its establishment of officers and servants in 1849 than in 1841, when its condition was the reverse of prosperous. The present list of 60 candidates for election as members might be appealed to as an event altogether without precedent in the history of the society, and attested its growing power and usefulness. The council had, during the session, issued a prize list for 1850, in its various departments of agriculture, arts, mechanics, and manufactures, in which upwards of 600*l.* worth of premiums and medals were offered for competition. They were happy to add, that at the head of the list stood the two gold medals of his Royal Highness the President.

The society had to be congratulated on the admirable exhibition of paintings which clothed the walls of the great room during the summer. It was visited by thousands of persons. The council felt it their duty to allude, however briefly, to a great undertaking, which, originating with his Royal Higness PRINCE ALBERT, had long been an object of deep interest and gradual preparation, and to which allusion was made in that room at the last general meeting. The members would recollect that it was stated on that occasion that the great object of a national exhibition of industry was now more likely than it had ever before been to be carried out to a successful issue. This anticipation was in a fair way to be realised. But as an appropriate preliminary to such a statement, the council thought it well to place before members the report of Mr. DIGBY WYATT on the great French exposition of last summer. The council thought it wise that the society, having entertained, from time to time, this national subject, should put itself into possession of what other countries had done towards such an undertaking, although nothing at all approaching to the grandeur of the design, and the extent of the exhibition, had hitherto been undertaken in any country. In Mr. DIGBY WYATT the council found a gentleman possessing the requisite professional talent, and the taste and judgment required to carry out this view with the greatest benefit to the public.

The address was received with much approbation, when Mr. DIGBY WYATT was introduced, who read a very long and interesting report on the progress of the French expositions of arts and manufactures. It commenced with an allusion to the uniform attention paid by the French Government to the development of manufactures in that country by means of premiums, expositions, elementary schools and societies; and after an historical *resumé* of all the ten previous exhibitions, Mr. WYATT entered into a most elaborate description of the exposition of last summer. A plan of the building, and of the arrangements for exhibiting the several classes of manufactures and products, materially assisted a comprehension of the details. Machinery, it was remarked, was a great and predominant feature in the exhibition, though in 1839, only 10 years ago, it formed comparatively a very minor item. This fact was a manifestation of the power of France to get up those machines on the possession of which our own facility in production had long depended; and he feared that if once she attained in this department anything approaching our own perfection, at the same time retaining her artistic capability, she would be enabled to command many markets to which we alone had now access, and which we were too apt to regard as permanent property rather than as requiring peculiar and continued exertion to monopolise. The building in which the last exhibition took place was described with considerable minuteness, and its defects pointed out. It was considered defective, because it could be applied to no other purpose after the close of the exhibition; also its construction was such, that from no one point could a spectator take a *coup d'œil* of the whole—a point of great importance.

The system of *sham*, also, which presided over the ornamental parts were quite distressing. Great *carton pierre* trusses, supporting nothing; quadily painted bas reliefs, to imitate bronze; fir covered with paper, to represent oak; and other imitations, which were all unnecessary, and should be considered as wasteful professional forgeries. If each simple material had been left to tell its own tale, and the lines of construction so arranged as to conduce to sentiments of grandeur, power, and truth, which its enormous area would have ensured, it could not have failed to excite admiration, and at a very considerable saving of expense. The cost of the several buildings were—in 1839, 14,550*l.*; 1844, 15,050*l.*; 1849, 18,000*l.*; the cost per square foot English was—in 1839, 2s. 2d.; 1844, 1s. 3d.; and 1849, 2s. 3d. The prizes in 1839 amounted to 2430*l.*; in 1844, to 3238*l.*; for 1849, no return was yet made. The last building covered 5½ acres of ground. A discussion ensued upon several points in the report, and much gratification was expressed at the extent of information furnished by Mr. WYATT, which Mr. TITE remarked would enable those who had the management of the grand national exhibition, to be held in London in 1851, to avoid many errors which their neighbours had committed, and to acquire many useful hints. A vote of thanks was most cordially passed to Mr. WYATT, who replied; and a similar compliment was paid to those gentlemen who had submitted the several specimens in the room for inspection.

This highly interesting and important subject being now before the public in a tangible shape, the perambulatory exertions of the deputation from the society having fully evinced that the general feeling of the wealth and talent of the kingdom is highly favourable to an exposition on the most grand and liberal scale, and it being also evident that funds to any extent may be obtained for the purpose, it now only remains to carry out the de-

tails, for which there is ample time, to obtain designs for and construction of the buildings, and arranging the entire mode of exhibition. We have no doubt all concerned will devote their best energies to this great purpose; and we firmly hope to see such a display of the talent and industry of the wealth-producers of the world as could not previously even have been conceived, and that the extent and amount of the prizes, and the awards of the judges, will be such as to be worthy this great manufacturing and mercantile nation, and give general satisfaction to the several exhibitors and competitors, and the world at large.

To the subject of "An Asturian Shareholder's" communication, our attention has been for some time directed, with the view of defining the responsibilities of English mining adventurers, and others, engaged in commercial transactions in Spain. In the case of the Asturian Company, however, the legal questions are rendered peculiarly complicated, by the conflict of opinions respecting its double character of an English and a Spanish company. We have been collecting materials to give a satisfactory exposition, if possible, of the general application of the law in such cases; but until we shall have received some communications we expect from Spain, we must suspend the expression of our opinion. We must also decline entering upon any discussion, as to the charges against the directors; it would be prejudging the case, and however clear the fact may be, as to the existence of a serious delinquency, we have no right to attach the accusation to any individual, or section of the direction, until a fair verdict is recorded against them. Besides, we consider the present time unsuitable for a dispassionate examination of the merits. Irritated feelings must naturally prevail in adjudicating upon an issue, where the parties interested to convict are themselves judge and jury. If anything could give us confidence to hope for future prosperity in the affairs of the company in question, it is the forbearance of the investigators on the one hand, and on the other the prudence we observe on the part of those who now act as directors, in laying aside all personal difference and useless exculpations, to unite with their opponents in a combined effort to save the company. From the names of the directors recently attending the general meetings, it is useless to disguise the fact that a portion of the board has been virtually, if not actually, superseded. We can well conceive a sufficient reason for continuing, as passive members, those to whom no responsible shareholder could be found to succeed, with the present load of liability and legal difficulty heaped upon the company. This affords a partial satisfaction for the past; and so far we will say that we do not coincide with our correspondent's views upon this subject.

Let the present cloud of danger pass away, and we venture to predict, that more than one important change will take place. In the meantime, our correspondent will exercise a wise discretion in paying the call; for let the worst happen, it does appear, from apparently clear evidence, that there will be found sufficient funds to repay much more than the amount so invested. On the other hand, we can advance an opinion as to the application of law in this country; and, supposing that the call were to fail, the company become insolvent, and its affairs brought into Chancery under the Winding-up Act, we can assure our correspondent (appealing for corroboration to those who are now undergoing that painfully tedious and expensive operation—a *winding-up*), that his position would not be improved. The very first salutation he would most probably receive from that important functionary (the Master in Chancery), would be an order to pay a contribution towards the discharge of debts and *probable expenses*.

Feeling good-humouredly malicious towards those who inconsiderately sink their money in foreign schemes, to the manifest neglect and detriment of our native industry, and taking into account the squabbles with directors, and legal quirks and quibbles on all sides, we are disposed to say, as we have before said, we wish the shareholders well out of the scrape.

A pamphlet on "Railway Prostration, Causes, and Remedies," has just been published, from the pen of Mr. JOHN WHITEHEAD, of the Stock Exchange, who has, on several occasions, appeared most favourably before the public, on subjects connected with the abuses of railway management, the errors which have been committed in the past, and the best means to be adopted for the future, to relieve the companies from their embarrassment, and place them on a sound and permanent basis. In the letter before us, which is addressed to Sir ROBERT PEEL, as one of the leading legislators, to whom the demerit of the too rapid expansion of the railway system attaches, we find the same acute researches into the proximate causes of all the evils which have beset the railway system, as were evinced in his former publications; while, although we thoroughly coincide with him in the majority of his propositions, there are one or two which, we think, could not well be carried out, and even if they could would neither tend to the benefits of the companies, or to the advantage of the public. The first point to which Mr. WHITEHEAD directs attention, and on which subject he addressed Mr. GLYNN about a year since, is the insane practice of companies lowering their rates to charges ruinous to themselves, for the purpose of crushing competitors, with the view, when successful, to raise them to a maximum amount. As a remedy for this evil, he proposes that railway and canal companies, having once reduced their rates, shall not be allowed to raise them without showing good cause for doing so; and this plan would, we have no doubt, put a stop to that spirit of opposition, which too often shows itself among members of directorships, and which, if report speaks true, is now causing a loss of many thousands of pounds per annum by the London and North-Western, Lancashire and Yorkshire, and the Bridgewater Canal Companies, from their determined competition for the goods traffic of the district. Before proceeding farther with remarks on the pamphlet, we extract the following as the general alterations which he proposes, as tending to establish confidence in railway undertakings, and render them profitable and permanent investments:—1. Having once reduced their rates, they shall not again raise them without consent of Government.—2. A stringent system of independent audit.—3. The abolition, or modification, of the proxy system.—4. Relief in the poor and highway rates' assessments.—5. Modification of the Government passenger tax.—6. Free trade in rates and tolls.—7. The Government should lend on mortgage to the companies, itself making profit thereby.—8. Railway capital should be guaranteed a minimum return in case of failure, the Government partaking equally in after profits, in the event of such arising—and 9. It should be compulsory in railway companies to establish reserve funds.

In the first four of these propositions we fully concur, as regulations which must absolutely be exercised in their fullest force before any hope can be entertained of an improved state of things. We do not think a modification of the Government tax so necessary; the tax is by no means oppressive, and it is but just that they should subscribe to the inland revenue with other branches of national industry. Nor do we see clearly how a sliding scale could be adopted, which appears the author's idea, to relieve those very few lines which have not sufficient profit at present to pay expenses; we could have no objection to the levy being on the net, instead of the gross returns, but then, although this would relieve the unprofitable lines, it would still only be a question of amount, as it is but just that railways should pay; and probably, should the proposed boon be pressed for, it would appear but fair to levy a larger per centage as a rate. Free trade in rates and tolls would, we fear, lead to most anomalous results, enabling fares of all rates and proportions to be enforced, different on every line of railway, as directors' whims and fancies might dictate, and rendering that (one at least wise) measure of the Legislature for the security of third-class travellers nugatory. The scheme of Government mortgage would, we fear, lead to endless confusion; although we have not much fear of any CHANCELLOR of the EXCHEQUER being very anxious for the additional labour such duties would necessarily incur in the working out of the suggestion, even for the sake of the profit which the author calculates would arise to him therefrom. On the ninth, and last, proposition, there can, we think, be no two opinions; for the general working, as a joint-stock company, a reserve fund is always necessary to meet contingencies; but when there is such wear and tear, and necessary continuous and expensive additions and repairs, as in the rolling stock and permanent way of a railroad, it is highly essential that an efficient reserve fund should be always at hand to meet any casualties which may happen.

Upon the whole, we recommend Mr. WHITEHEAD's pamphlet to all interested in railways, which will well repay a careful perusal; and, as a specimen of its impartiality and pointedness, we give the following extract:—"Mr. GLYN, Mr. M'GREGOR, and other railway chairmen, at the recent half-yearly gatherings of their proprietors, told them that those sources of all railway evils—the capital accounts—can never be closed. In opposition to these declarations, I know many who believe, that if the closing of the capital account of the London and North-Western Company would insure to Mr. GLYN a return to 10*l.* per cent. dividends, and that of the South-Eastern Railway Company to Mr. M'GREGOR a seat in the House of Commons, both would set their wits to work to discover an easy solution of the now declared impossibility; as, however, the 10 per cent. is gradually gliding from the hopeful eye of the one, and the other has become content to forego his senatorial aspirations for a snug 2000*l.* per year as the South-Eastern Railway manager (a wise man, too), no mode by which the capital accounts can, without inconvenience, be closed, can be discovered by them. Their proprietors will tax the ingenuity of these gentlemen before long; and they will then be compelled to gainsay their present unwise sayings by wiser doings."

We have also received a pamphlet on the subject of the necessity of Government interference in railway affairs, in a letter to the Right Hon. H. LABOUCHERE, M.P., President of the Board of Trade, as also the establishing a uniform system of railway accounts, and an independent audit, as an effectual remedy for existing evils, from the pen of HARRY SCRIVENOR, Esq., the secretary of the Liverpool Stock Exchange, and author of *The Railways of the United Kingdom Statistically Considered*, which we noticed in the MINING JOURNAL of the 9th June last, and also of *A History of the Iron Trade*, with which our readers must be familiar, from the ample manner in which it was reviewed and extracted from previous to, and at the time of, publication. The subject of the effects of Government interference, whether its influences would tend to the good or evil of railway property, has become a bone of contention between railway directors, engineers, lawyers, contractors, and others interested in mystery and deception, on the one hand, and shareholders and the great body of the public, on the other. For our own parts, we have ever been of opinion that, as railway companies were chartered by the Legislature for the public good, and as, in consideration of affording extra travelling accommodation to that public, they were endued with powers and privileges unheard of before, they are most justly amenable to the Legislature for any direliction of principle or breach of faith; indeed, that they are too largely involved in the national prosperity to be treated as common partnerships, or mere trading joint-stock companies.

Mr. SCRIVENOR most ably shows this, and gives, as a precedent, the passing of Mr. PITT's famous Act for the better government of the East India Company, on the 13th August, 1784, establishing the Board of Control, whose duties were, "from time to time to check, superintend, and control all acts, operations, and concerns, which in any wise related to the civil or military government, or revenues of the territories and possessions of the said united company in the East Indies." On the iniquities which had been committed by this company, Mr. ADOLPHUS, in his *Life of George the Third*, writes:—

> It was not possible for the British nation to behold this progress of iniquity and calamity without sentiments of anxiety and terror. The East India Company was no longer a firm of merchants trading on a private capital to a distant shore; the possessions in India were not simply beneficial appendages connected with the empire; but such was the intermixture of their revenues with the public finance—such the intimate intertexture of their commerce with the property and welfare of the State—such the union of interest and co-existence of the company with Government, that its ruin was regarded as portending downfall to the whole edifice of the British empire.

On which Mr. SCRIVENOR graphically observes:—

> The same language is applicable to the railway companies of our day in a remarkable degree; the same crisis has arrived in their history. With truth may it be said, the British nation behold their "progress of iniquity and calamity with sentiments of anxiety and terror;" the turning point has been reached when these companies cease to be simply "a firm of merchants trading on a private capital;" and when such is the "intimate intertexture of their commerce with the property and welfare of the State," and such is their "union of interest and co-existence with Government," that it is not possible for ministers to look upon the prostrate state of their affairs with apathy and neglect; but an imperative necessity demands from them instant attention to the wants and requirements of the railway system, in which millions of our countrymen are interested, who are now anxiously waiting for a remedial measure that will strengthen and support the noble fabric they have raised, and provide for its future stability and public usefulness.

After having shown the undoubted right, as well as the imperative necessity of interfernce on the part of the Government, he proceeds to show how a uniform system of accounts, with an independent audit, would establish confidence, and tend to make railway stock to being considered equally secure with Consols. No honest director would object to having his accounts audited, and the author very properly asks—"Why, in the name of common sense, should not directors of the London and North-Western or the Great Western Railways, be as willing to submit their accounts to *independent auditors*, as are the Commissioners of Customs or Excise? These do not complain of any tyranny in being compelled to do so, nor do the Lords of the Treasury complain of having their accounts searchingly examined by auditors *independent* even of themselves." We have not space for further comment or extract, but also strongly recommend this pamphlet to the railway shareholder. The time must arrive when these important points are carried, until when there will be no real prosperity for railway companies.

Opportunely with this subject, there was held, on Thursday last, at the King's Arms Hotel, Westminster, a well attended meeting of chairmen, directors, and other representatives of the great body of railway proprietors in the kingdom, to take into consideration the best means of securing a more efficient system of audit of railway accounts than has been hitherto generally exercised, and in unison with the opinions so unanimously expressed by shareholders at the late half-yearly meetings. The Earl of LONSDALE was called to the chair, and opened the business by alluding to the bill for Government interference, introduced by Lord MORPETH, which passed the Lords, but was thrown out in the Commons. He entirely deprecated Government interference with the commercial private affairs of individuals as bad, obnoxious, and objectionable. Lord JOHN RUSSELL had assured them that Ministers had no notion of introducing any similar measure, if a guarantee was given that a bill should be introduced next session, that would give by law such an efficient audit of railway accounts, as should be satisfactory to the general body of railway proprietors. He (the chairman) believed the general opinion was, that some better system should be adopted by law, that plainer and more lucid exposition of financial affairs should be forthcoming, and also that there should be strict uniformity in the system of keeping accounts. In these suggestions his lordship entirely concurred. He concluded by moving a resolution to the effect, that the almost unanimous feeling of railway proprietors was against Government interference. It was further resolved, that powers be taken for auditing accounts every three months, such audit, however, to be continuous, and the auditors to report to the directors, that if a question arises between the auditors and directors concerning any application of the funds, that question should be speedily referred to the next meeting. The succeeding ones, which were also passed, proposed to provide that the auditors should audit the accounts half-yearly, and report to the meeting of shareholders the nature of their audit and its results, with their opinions, and that this report, accompanied by the accounts, and by any report which the accountant may, if he thinks fit, make, shall be circulated amongst the shareholders five clear days before the half-yearly meeting—the accounts passed by the meeting to be final, subject to the question of voting—the half-yearly financial statement of all companies to be made out, as nearly as may be, to the form prescribed by the Act. It was finally resolved that the resolutions be published, and transmitted to every railway shareholder in the kingdom.

The plan generally resolves itself simply into this—Two paid auditors are, it is suggested, to be appointed by the shareholders (not the directors) of each company; but the present field of choice is to be enlarged, by enabling the shareholders to elect, if they please, competent persons, who have no interest in the company. These auditors are to have the power of appointing an accountant under them; and they shall (not as at present, merely audit a balance-sheet laid before them by the directors, but) from time to time, during the half-year, examine and check the company's books and accounts, and, at its termination, prepare a half-yearly statement of its affairs, to be laid before the shareholders for their approval or disallowance. Should differences of opinion arise during the half-year as to the books, accounts, and affairs of the company, between the auditors and the accountants, they are to make separate reports to the shareholders, who will decide for themselves on those differences. So far the meeting was tolerably unanimous as to the plan to be proposed; and we have no doubt some such system, well organised, and rendered imperative for the adoption of every railway company in the kingdom, would give general satisfaction. It will be noticed that we, in common with the authors of the pamphlets above noticed, have used generally the term "Government" interference, which, from the remarks of the chairman, and the general expression of opinion at the principal railway meetings, appears to be considered the placing the powers of appointing auditors in the hands of the Government for the time being, and thus creating additional and unwarrantable patronage. The term would certainly more properly be "legislative" interference, and if an Act of Parliament is passed, rendering uniformity of accounts and independent audit compulsory, the greatest satisfaction would, doubtless, be afforded; shareholders will know at any time the true position of their affairs, and confidence in the capabilities of railway property be permanently established.

We have received several of the periodical circulars from eminent sharebrokers in Manchester, Liverpool, and other large towns in the provinces; and, the opinion is general, that the awful depression in railway property has arisen from the same cause—want of confidence in the management and the accounts. The following extract from one may be taken as the spirit of the whole:—"The increasing loss of public confidence is pressing down the value of your unguaranteed stock in a most destructive and alarming degree; and, until your affairs are placed on a footing of security by honourable management, such as the public can understand and rely on, it will be in vain to expect railway property, in any form, to command that confidence to which its great utility and security entitle it. Then, and not till then, will railway stock assume that commanding form which it merits, by the vastness of its amount, and the fact that, as a security, it is fixed immoveably for ever in our own country."

Having, in the MINING JOURNAL of Oct. 6, inserted a communication from Mr. THORNEYCROFT relative to the correspondence which had previously taken place on the subject of two descriptions of patent axles, in connection with some diagrams, descriptive of the tests to which his compound axles had been subjected, proving their superiority, and it having been since attempted to be inferred that Mr. THORNEYCROFT had merely tested his own axles in private, a further communication appeared on the same subject in our columns last week. From this it will be found that the tests were conducted by Mr. BOWMAN, a gentleman of very considerable practical experience, having been, we understand, connected with the management of an extensive iron manufacturing business in Scotland for nearly 20 years; and further, that the experiments were carried out in the presence of four other gentlemen of high respectability, closely connected with engineering and the iron trade, and to whom they gave the most entire satisfaction.

In the latter paper to which we refer, there will also be noticed a new test to which the compound axles have been put, by placing them on two props, and letting a ram fall on the ends or solid portion to test the strength of the bearing portions: the figure into which they were bent, after repeated blows of heavy rams, is highly satisfactory, as to their strength and tenacity. We have, of course, no personal interest in this discussion, but everything has appeared so straightforward in these experiments, with the absence of anything like collusion or deception, that we consider we only do our duty, in calling the attention of the railway world to the evident safety to which these axles will contribute in railway travelling.

Since the above was in type, we have received Mr. BOWMAN's report of his inspection of some rails laid down on the Great Western Railway, patented some time since by Mr. THORNEYCROFT, which report, as also some diagrams and descriptions, will be found in another column. These rails we gave a description of about two years since, soon after they were laid down as an experiment; and the result of the peculiarity in their character, arising from their antilamination, as described by Mr. BOWMAN, shows them to possess all those elements of durability and economy, which the patentee in the first instance claimed for them. There is little doubt that, for the interest of railway companies, directors and engineers will avail themselves, to the utmost extent, of such a source of diminution of expenses in the permanent way.

ASSURANCE OF RAILWAY PASSENGERS.

The fearful accident that occurred on the Blackwall Railway on Wednesday evening, is a near-at-home answer to those who supposed that the risks of locomotion ceased with the establishing of the Railway Passengers' Assurance Company. That they should be lessened in consequence, was only a natural inference, because the promised participation by the working hands on railways in the profits of the company, will have tended to induce more care in the drivers, pointsmen, and others upon whom most depend the safety of the public; but to believe that they would be entirely averted, must be to entertain a marvellous reliance on the perfectibility of human nature, as well as in the work of human hands; nor is this the only lesson taught by that lamentable occurrence. We have heard parties say "it is all very well to ask for an assurance ticket when you are paying your railway fare for a long journey; but who would think of doing so on a short one?" Our reply has been, "Who is there, taking a seat in a railway carriage for ever so short a trip, who can presume to say that it shall be accomplished without any accident?" Where the last recorded collision has happened, every one may now learn by a perusal of the newspapers; but who is the prescient one, capable of telling us where the next will occur? In the *Times* of Friday will be found the full particulars of the accident, to which we have thus called the attention of our readers. We have only space in which to describe the effects; of "smashed carriages," and other injury to property, we take no note just now; but it appears that in one of the second-class carriages no less than eight passengers were found to have been seriously injured. One had a fractured collar-bone, two ribs broken, and severe bruises inflicted on various parts of his body; another was much bruised, and severely cut over the eyes; and a third was painfully cut and bruised. These three required special surgical attention. Their fellow passengers, not so dangerously hurt, made their own way from the scene of common suffering to their respective residences; but the excess of individual injury fell on the occupants of a first-class carriage; and is thus described in the *Times*:—

> The most severe injury was sustained by a young lady, named Hill, residing in Copenhagen-place, Limehouse. She was in the first-class, and going up to town with a Spanish gentleman, of the name of Hilliott, of Great Portland-street, who had been visiting her parents in the course of the afternoon. They were seated on each side of the carriage, and the shock of the collision threw them against each other, when the rim of the gentleman's hat struck the young lady on the upper part of her face, and nearly cut her right eye out. When extricated blood was flowing copiously from the severe gash. She was otherwise much bruised, and, in an afflicting condition, was taken to Mr. Gill's, surgeon, White Horse-street, near the station, who had her immediately removed to her own residence. At present her sight is gone, the injury of the right eye having affected the vision of the other. Mr. Hilliott was also so much injured, as to render his continuing at Mr. Gill's for the night prudent. Another sufferer, named Harry Newton, in the Tide Waiter's Office at the Customs, was seriously injured about the chest and legs, and the poor man wishing to be taken home, was at once conveyed to his residence, near Bermondsey church.

Besides which, it appears, there were several in that and other carriages, the extent of whose injuries could not be ascertained, in consequence of their being better able to escape from the confusion, and have their wounds or bruises attended to at home. Yet, in the two introductory notices thus disposed of by such conclusive evidence, what strikes us most forcibly is, the advantage which each of the unfortunate sufferers would have possessed, if the holders of a single-journey ticket issued by the Railway Passengers' Assurance Company—immediate surgical or medical attendance, a supply of money (if needed) for present purposes, and ultimate compensation for loss of time and physical pain endured. It is in this respect that public good is best considered, because here there would have been probably a dozen claims for compensation of the minor, yet not less requisite, fund, although there was not a single loss of life. And is it not a little singular to remember, that when, a fortnight since, we wrote on the same subject, we inferred that the public might, we feared, consider those lines of railway to be most susceptible of accidents, at whose stations these assurance tickets could not be obtained?

In that predicament has stood the Blackwall Railway, or the public using it as a means of transit; we care not who decides, or which way goes the decision; the facts remain the same. Therein, unhappily, prudence could not be exercised; and there the passengers have met with serious personal inflictions, although the proprietors may possibly have to make some pecuniary recompense. If promptly and liberally made, good for the public; if not, better for the lawyers. But, as the matter now stands, it is the Railway Passengers' Assurance Company that alone escapes scatheless.

COALS FOR CALCUTTA.—The East India House will receive tenders, on the 21st inst., for 1500 tons of the following sorts of coal, to be delivered at Calcutta:—West Hartley, Carr's, Buddle's, Davison's West Hartley, Hartlepool West Hartley, Stewart's Wall's End Steam Coal, Glasgow hard splint, and screened Risca black vein, handpicked.

Original Correspondence.

THE LAW WHICH REGULATES MATTER.

SIR,—We find that for 32, 16, or 8 processions of the Equinoxes, which performs a tour of the ecliptic in 25,869 years, the earth effects a movement equivalent to a complete revolution in another direction. The depressions and elevations which the earth has suffered from the granite to the tertiary formation are equal in one case to about 39,000 feet, in another to 34,500 feet, and in another to about 25,000 feet; each of which being a maximum, from whence they have slowly, or periodically, diminished through each successive phase of deposition down to the present time. The centre of gravity of one phase of deposition we find in one case to be about equal to twice the amount of denudation of the next prior phase, and equivalent to the elevation of the next progressive phase. In another, we find the centre of gravity of one phase to be equal to three times the amount of denudation of the next preceding phase, and equivalent to the elevation of the next successive phase. In bringing our calculations down to the present time, the centre of gravity of the land above the level of the sea corresponds within a few feet of that given by Humboldt in his *Cosmos*; and the centre of gravity of the next prior phase is borne out by *Chambers' Sea Margins*. It is evident, therefore, that there are points in the earth's curvature where gravity is *zero*, and that those points are really, though not apparently, near the mean level of the sea; and where the solid particles constituting the surface stratum of each phase of deposition in ascending order are balanced by the central mass (directly as the mass, and inversely as the squares of the distances), so that any excess to that limit, or limits, in the curve, or curves, is swept away sooner or later towards the formation of the next system of deposits.

The elevations and depressions of the earth are produced by a transference of pressure, and acting on the principle of a forcing pump; and by a transference of deposits from one zone of deposition on to the next, governed in each case by the pressure of the tidal wave, which rolls its impetuous billows from the south, opposed by a counter force or pressure from the north pole, with local depressions and elevations arising out of its secondary action, which, combined, effect an alteration in the configuration of the earth of about an inch a year, or about *eight feet* in a *century* (half an inch by depression and the same by elevation). In other words, the land rises and subsides in the same proportion as the difference between the true and apparent level of the earth's curvature, which is at the present time nearly eight inches in a mile.

To give the readers an idea of our calculations, we subjoin the following, as being the least complicated (with a little alteration, in order to make it as simple and intelligible as possible), out of three bearing on the same subject:—

A procession of the equinox (tour of the ecliptic)	25,869 years.
By sixteen revolutions, or tours	16
A recession from pole to pole, or equator to pole	413,000 years.
The same, 25,869 by 32	826,000 years.
The same, 25,869 by 8	206,944 years.
The depressions and elevations of the earth above and beneath the level of the sea	34,500 feet.
Reduce to inches	12
	414,000 inches.
The same, 34,500 feet by 24	828,000 half-inches.
The same, 34,500 feet by 6	207,000 inches.

The reader will now imagine the 16 tours of the ecliptic to be proceeding, in conjunction with the earth's revolution on its axis, in a somewhat spiral form, and effecting, by depressions, elevations, &c., an alteration of about one inch a year, or about eight inches in a mile, he will find, on reaching the end, that an aggregate change has been effected equivalent to about 414,000 inches, or a maximum and mininum has been produced in opposite directions—in other words, the earth has changed its poles. The nearest simile we know of to this movement is that of a steamer propelled by a screw of about 8 feet in diameter, placed at an angle of 23½ degrees to the plane of the keel; and for every 365 revolutions of the screw the steamer to pass 110 yards forward. Admitting the revolutions of the screw to be 96 a minute, the steamer would be propelled at a rate of 15 miles an hour. Again, the earth, for every 365 revolutions on its axis, to effect a movement in another direction of 110 yards, would give a rate of one mile in 16 years. It is, therefore, more than probable that our earth is proceeding at an almost incalculable velocity in space, and that the movement of about 110 yds. a year is the excess produced by the resistance offered to its course, which excess is again counteracted or balanced by the pressure of the tidal wave, effecting, with the assistance of other powers generated by it, elevations and depressions equivalent to the difference between the true and apparent level of the earth's curvature, causing every particle, or element, in and surrounding the earth to tremble like an aspen leaf, or the vibrations of a steamer, as it stems the tide in its progress. The sun's rays, impinging on the outer surface of the atmosphere, are deflected to the point, or points, in the earth's curvature, where the attraction of gravity is expended, or the limit of attraction, which keeps the solid particles of the surface stratum together; here it meets with the friction of the tidal wave. The union, or antagonism, effecting an excess (electricity equivalent to gravity), which is again transmitted through the deposits of the earth (the air being in this action a diamagnetic, thus causing the excess or power generated to seperate or fly off at a tangent); and as the strata forming reach by elevation the limit of attraction, the excess is carried away by denudation (also acting at a tangent) towards the formation of the next system in the ascending scale; so on from phase to phase. Here, then, is *light* and *heat* effecting an excess (electricity equivalent to gravity) at points in the earth's curvature, where the attraction is expended, which holds together the solid particles constituting the surface strata.—F. M.: *Neath, Nov.* 1.

[*To be continued in next week's Mining Journal.*]

PATENT LAW REFORM—THE COMING SESSION OF PARLIAMENT.

SIR,—If we were to judge from the apparent apathy of the parties most interested, we should conclude that the patent laws of the United Kingdom were so good that no beneficial reforms of any moment could be effected; for unless we draw this conclusion from the silence and indifference of inventors to the great stir that has been made by the appointment of a Government commission of inquiry, which has recently reported in favour of some amendment of the present imperfect system, as noticed in the *Mining Journal* some weeks since, we shall be lost in wonder at apathy so profound, that even the enticing announcement that the Government would take into consideration the oppressed state of the inventor, can raise up scarcely a voice in defence of justice and true policy: but, in truth, I am disposed to think that the community is tired of continually complaining without any good result, and from the frequency of such efforts as these on the part of the Government turning out mere humbug, if I may be permitted to use that term, they treat the matter with indifference and neglect. The necessity for some amendment of the law has been very generally allowed; and I think the main points for amendment have been decided upon, if we may judge from the very general support conceded to the petition presented by myself, in conjunction with several hundred inventors, in the early part of last year [see the *Mining Journal* of April 8, 1848], which, in a great measure, induced the Government to appoint the commission of inquiry. If amendment is really desired by the inventive portion of the community, let them strike whilst the iron is hot, and they will, doubtless, come off victorious; for it is highly probable that what has been already done by the superior powers is, as in many other cases, nothing more than putting forth a *feeler* to ascertain whether emendation be earnestly desired or not.

The recommendations of the Government have been already placed before your readers, and in the majority of these recommendations I think we must all agree; on one point however, it will strike all persons, who thoroughly understand these matters, that the committee have been led into error. It is this:—They propose that, instead of the patent right for the United Kingdom being only obtainable upon payment of from 300*l.* to 400*l.*, it should be reduced to 100*l.* Now, although this would be a great boon to many, it would be none to very many *poor* inventors, whose sole riches very often lay in that wonderful inventive genius with which Providence has endowed them. To talk to them of 100*l.*, or even 50*l.*, is to speak of a *great sum*, and to obtain this they must, as at present, appeal to the capitalist, and place themselves at his mercy. My remedy the readers of the *Mining Journal* must be well aware is the French system of annual payments *of small amount*; but after what passed at my examination at the Treasury on this subject, I despair of effecting this, at all events, for some years to come; and this being the case, I revert to the alternative, stated in the petition referred to—namely, that of allowing the patent to be commenced and date from the day of application, not requiring the payment of any larger sum than is now paid up to the report. This would enable any one to secure his rights for a sum, including all expenses, of not more than 10*l.*, and this he might rest upon until the time for specifying approached, as he would be in this position:—he would have date given to the patent right, but the letters patent would not be *issued*; however, as his rights would date from the commencement, so would the term for specifying; but as he could not specify under letters patent that were not actually issued, it would be necessary for him to take up the letters patent, and specify before the expiration of that term; but further there should be nothing in the law to prevent the patentee from abandoning his first application and making it anew, if advisable. Indeed, what I now propose amounts to this:—that the practice in this respect shall stand exactly as it does at present, with this single alteration—that the *patent shall date from the day* of application. Of course, I advocate all the other points of the petition adverted to—viz.: deposit of a memorandum of specification at the time of application, or dating of a patent; the formation of a digest of patents granted; the appointment of official scientific referees, for the assistance of the authorities; and hereafter the power of transfer, to be given in cases of fraudulent patenting; and the consideration of the question whether the cost of patent lawsuits could not be materially lessened. I am about to prepare a petition to this effect, and shall be glad to hear the opinion of inventors and patentees.

Before concluding, I must remark that I do not consider the above plan a panacea, nor even the greatest approach to perfection; but I think it is what we may *get now if we like*; and I am certain that it will give every man of inventive genius his chance, and that we cannot be opposed on any reasonable or even plausible grounds by any parties, as I am prepared to show.—F. W. CAMPIN: 210, *Strand, Nov.* 7.

THE SUPPLY OF PURE AND WHOLESOME WATER.

SIR,—It requires no seer to tell us that despite of "vested rights" and other antagonistic powers, the period fast approaches when we shall no longer consider it necessary to *worship God* in sepulchres amidst the mouldering remains of mortality and the *spolia opima* of the grave. The question is decided by public opinion; and the absolute and paramount necessity for a supply of pure and wholesome water to the inhabitants of towns, must, notwithstanding the opposition of contending and party interests, be also eventually conceded; and no power, however formidable, as a body corporate may stay the concession demanded. If there be a boon in the list of temporal blessings more prominent than another, *pure and wholesome water* is that invaluable one. Health and enjoyment, or disease and death, hang trembling in the scale, pending the decision.

The water with which the town of Hull is at present supplied is, beyond all reasonable doubt, the worst imaginable, and while I must not be understood as insinuating, even by implication, that it has been the origin or source of the pestilence that has so awfully invaded the population, I fearlessly assert that it may most justly be pronounced the cause of the aggravation of the evil, in superinducting its most malignant and virulent type, as well as that numerical increase of its victims which raised its fatal ratio beyond a parallel in the British empire. In order to substantiate my position, I may appeal to facts patent to the public,—Lambeth, Newington, Chelsea, and such other places in London as were supplied direct from the Thames, were precisely those districts where cholera raged most virulently. In 1832, Newcastle-upon-Tyne was supplied from the river, and cholera raged fearfully there; since that period the town has received its supply from another and purer source, and during the present prevalence of the pestilence it has entirely escaped. On its first visitation the Gorbals of Glasgow was supplied with impure water, and then the cholera there transfixed its numerous victims, and displayed its most deadly power; since 1832 that district has been provided with good water, and this year, while other parts of Glasgow contributed its hecatombs of victims, the Gorbals remained all but entirely free. I might adduce many more cases, but these speak "trumpet-tongued."

River water as the origin of supply for towns is a more than questionable source, from the numerous impurities which mingle with it in its progress, and run into its channel from multiplied ramifications; it thus becomes the medium of noxious and pestilent gases, and the fruitful matrix of organic life, from the *hydatina* upward to the *vibrio fluviatilis* inclusive. Filters are deceptive, and altogether passive here; they can neither alter the chemical constitution of water, nor intercept the germs of animalcular life—the grosser feculent matter being alone retained. The Hull water is not only vitiated by the drainage of Beverley, but is also rendered injurious by the tidal influence, which makes it *brackish* by the interfusion of saline matter, while organic matter is derived from the former. During the warm weather of summer and autumn, the Hull water hence becomes instinct with *infusorial life*, as I have repeatedly proved. The *vibrio fluviatilis* reveals its source and origin, and the green *narvicula* and *bacellaria*, as well as other polygastric organisms, are its concomitants. I believe that the water with which the town was formerly supplied was comparatively pure and wholesome, but I strongly recommend for adoption the search for water on the principle of Artesian wells, to which the system of Fauvelle, in the self-depurating boring machine, contributes important facilities. In the determination of this, an all-absorbing question, the aid of the microscopist should be invoked as well as that of the chemist, and to end this "great argument:"—in 1832, the victims to cholera in Hull were only between three and four hundred when the town was supplied from the Derringham springs; whereas, in 1849, the victims to cholera have amounted to upwards of THREE THOUSAND FIVE HUNDRED, the supply being now derived from the River Hull! That man is surely wilfully blind, who can shut his eyes to this STARTLING AND ASTOUNDING FACT!

Portland-place, Hull, Oct. 30. ——— J. MURRAY, Ph.D.

IRON AND CARBON.

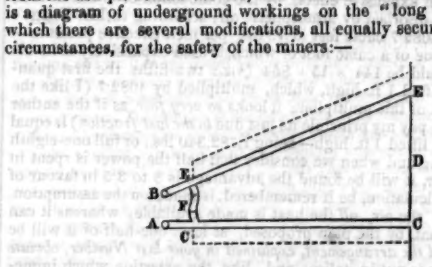
SIR,—When peroxide of iron and a carbonaceous body are suddenly heated, and allowed to fuse, they run together, and form the compound known as cinder; but if these two bodies, brought to a full red heat, are kept from fusion by stirring, or other means, pure iron, in a granulated state, is obtained. Upon this principle I account for the formation of the thin plates of iron found in the black-band calcining clamps at Hirwain, to which I alluded in my letter of the 30th Oct. A portion of the ore, converted into peroxide by thorough calcination, highly heated in the upper part of the clamp, and reduced to powder, had found its way to the bottom, where it rested upon lumps of raw mine, or ore, retaining all its carbon by the total exclusion of air. In this position part of the oxygen of the peroxide, combined with carbon, produced an atmosphere of carbonic oxide, which I have been in the habit of terming gaseous carbon. The portion of peroxide of iron which thus parted with oxygen, and which could be only that in actual contact with the raw ore, became a protoxide, and was further reduced by the carbonic oxide, leaving thin plates of pure iron, formed by the cementation of minute particles. In my opinion this accounts satisfactorily for iron being found, under such circumstances, merely in thin plates. Upon this principle, I have been contending that very good merchant bar-iron may be made from the rich ores, without being first smelted into pig-iron, either by a mixture of hematite and a carbonaceous substance, a mixture of hematite and black-band, or, by an improved mode of calcination, to form one portion of black-band ore into a peroxide, and mix it with a due proportion of the same ore in its raw state. I consider that merchant bar-iron is, and ought to be, a mixture of fibres of pure iron and cinder, the latter constituting no insignificant proportion of the whole. I am satisfied that the pure metal does not possess the property of welding. Iron prepared for tin-plates is the nearest approximation that we have to the pure metallic state, and this is as red-short as red-short can be. It may certainly be made to weld, but only by converting two surfaces into cinder in a smith's fire, where the iron is exposed to the joint action and absorbs portions of oxygen and carbon. It is the intimate admixture of cinder which imparts to iron the welding, and some other workable properties wanting in the pure metal.

Something of the principle to which I have alluded above is applicable to the blast-furnace for smelting pig-iron. If the Scotch ironmasters will but adopt a few improvements in their mode of working, they may bid defiance to the world in point of quality, as they have been doing in price for some years past. These consist in an improved mode of calcining a portion of their black-band iron ore, mixing it with the requisite quantity of raw ore, attention to the proper charging of the furnace, and the use of compressed coke, as prepared by the application of the principle of Nasmyth's steam-hammer, patented by Mr. Buckwell. The beneficial effects of this compressed coke in the furnaces up the Swansea valley have been represented to me as most extraordinary. There can be no doubt that the denser carbon can be made for smelting the better. Anthracite possesses this requisite property, but has, at the same time, others objectionable to its use in the ordinary mode of working. These might be obviated, but the anthracite proprietors, through some unaccountable perversity of judgment or of feeling, have thrown away a chance which may not speedily be replaced. Compressed coke possesses all the advantages, while free from the disadvantages, of anthracite coal. T. H. LEIGHTON.

Cwmamman, Nov. 5.

VENTILATION OF COAL MINES.

SIR,—Numerous are the proposed plans which have from time to time appeared in your valuable Journal for ventilating collieries, some of which may possess a degree of merit, but the majority would, if tried, be found worse than useless; and were it not evident that they are suggested from humane feelings, by parties ignorant of the subject, they would be absolutely disgusting to the practical miner. When a dreadful loss of life takes place in a colliery from an explosion, we are told that the lamps had not been used, or only partially so, and that every person in the colliery should have had a lamp. I have been a practical collier 65 years, and many of those years prior to the Davy lamp being known, and I can affirm that there were fewer accidents then than since the invention. Still the lamp is an excellent appendage in a fiery colliery to explore with, but not for general use. I would never work in any colliery, the atmosphere of which was so inflammable as to require every man and boy to work with a lamp; I would rather work on a barrel of gunpowder. I might be able to take care of my own lamp, but not of those of 100 men and lads, many of them careless, even reckless. My principal object in this communication, is to call attention to the much greater safety insured to the men under the "long work" system than by "pillar and stall, or "panel" work. By it the men have the advantage of an easy and rapid means of escape from the after-damp, which causes the greatest number of deaths; while by the other systems, such as practised in the north of England and some parts of South Wales, there is no way of escape after an explosion, when the doors and stoppings necessary to course the air in a right direction are all blown down; the air then takes the shortest direction from pit to pit, and nothing can save the men within. It is also a remarkable fact, that a much less number of these deplorable accidents occur under the "long work" than under the other systems. Let the lamp be constantly used to explore, and where there is any doubt; but if it was even possible for my time to come over again, I would never work but by the naked candle. The working collier is not like a smith at his forge, always in one place; he is continually advancing; and as the position of the underground working changes, so the manager must have his eyes and his ears open, and, if possible, always have two strings to his bow, that if one plan fails him he may immediately have recourse to the other. To carry out the "long work" system effectually, the furnace in the upcast pit is the best method ever adopted; it should be 20 or 30 ft. above the bottom of the shaft, of proportionate dimensions for the work it has to perform; and the fire-bars should project beyond the grate, to allow a current of air from the ash-pit behind the fire, and consume the smoke. The following is a diagram of underground workings on the "long work" system, of which there are several modifications, all equally secure, under peculiar circumstances, for the safety of the miners:—



A is the downcast shaft; B, the upcast; C, C, a horse-road, carried up to the face of the workings, D; E, E, another horse-road, to the face of the work, D; F, a road from pit to pit, defended by strong doors. The air enters the downcast shaft at A, traverses the road, C, C, along the face, D, and returns by E, E, to the upcast shaft; and in case of an explosion, take place where it may, those who are not disabled can escape by meeting the fresh air coming into the work. The horse-roads in a well-conducted colliery are built up close, and when all the coal is worked away, which is here represented to be between dotted lines, the superincumbent strata settles down much more securely than by any other system. The face, D, is supposed to be 300 yards long.—T. DEAKIN: *Blaenavon. Nov.* 6.

[Our correspondent forwarded us drawings of the "pillar and stall" and "panel" systems; but as they are generally well understood by practical men, and as the diagram inserted is applicable to the remarks attached, we consider its insertion sufficient.]

VENTILATION OF MINES—MR. COLWELL'S SYSTEM.

SIR,—The immensity of talent brought into action, and so voluminously displayed, in order to remove any favourable impression my humble efforts might have produced, is somewhat gratifying to a man contented with his present station in life, and who never sought to elevate his position, or to better his condition, by labours gratuitously bestowed in so noble a cause as the preservation of human life. I should, however, be doing a great injustice to myself and family—to my name and character—and deficient in my duty to the public under existing circumstances, were I to be awed into silence by the *extraordinary* means adopted to accomplish that end. As the space afforded me in your columns, however, will not admit of my entering fully into detail of the motives by which alone I have been actuated throughout, together with a defence to the arguments alleged against my humane design by anonymous correspondents, I trust I shall be enabled, through another medium, and at no distant period, to do myself justice, and at the same time benefit the cause into which I have been led by pure and honest motives. Be it remembered, that I have never professed to be what I am not; nor have I represented myself to be a scientific man.

I boast not even of high learning; but still I may be enabled sufficiently to analyse the evidence of many highly talented and practically scientific men, recorded in the various official reports which I now possess, to prove to demonstration that my theory accorded with their notions, and that *self-interest* rules supreme, even at the sacrifice of life! Henceforth this task shall be my pleasing study.

If proffered suggestions, intended to avert the otherwise necessary and known means of safety—but objectionable on the grounds of expense only—be rejected with insult, the mining interest must ultimately submit to the only alternative—viz.: *more shafts!* I can have no desire to persevere in suggesting any artificial means of ventilation, and therefore withdraw myself from the contest in this respect; but, in doing so, I respectfully beg leave to remind "J. R." of a few words accompanying his *extraordinary* eulogy upon my exertions—see his letter dated October 10. He says—"I rejoice, however, to see that he is a man of spirit, and an Englishman, who is neither to be persuaded or forced into silence so long as he has anything to say." This is the only *truth* I can trace in that letter, and it will be my own fault if I do not occasionally refresh his memory as to the correctness of this assertion in the course of my future endeavours to obtain justice on behalf of the oppressed.

There are a few other words to which I would beg to call the attention of the public in his letter, dated October 24th—viz.: "There is something singularly *chameleon like* in the scheme itself—it appears to *change* its *character* continually," &c. Now, I shall be content to wait awhile for the decision of the public, when the *chameleon* shall have been discovered; and at present I have nothing more to say to this gifted individual. His display of talent is fortunately recorded, and cannot be blotted out; I, therefore, fearlessly appeal to the British press, and to an enlightened British public, to fix the *censure* where it is most deserved.

Borough-road, Nov. 7. ——— CHARLES COLWELL.

ROTARY ENGINES—AIR ENGINES.

SIR,—I gather from Mr. Weston's allusion to my query to Mr. Curr, that he considers himself better capable of answering my inquiry than the latter gentleman. Will he, therefore, favour me by doing so, which he may the more readily as he has given the subject his attention, and displayed considerable ingenuity on it? As my question on the air engine remains unanswered, and I am desirous of understanding a project which promises so much, I beg to make a further inquiry. It is known that the maximum pressure of the atmosphere is 15 lbs. per square inch—that is to say, the weight of a column of air 1 × 1 in., and 30 miles high, is 15 lbs. If I understand Mr. Bagg's engine, it is based on the supposition that the *expansive power* of a portion of enclosed air, containing heat enough to double its volume will amount, per square inch, to double the weight of this whole column of atmosphere—that is, to 30 lbs. I should be glad to have my attention directed to the experiments and authorities which have established that heated air has this expansive power of overcoming resist-

ance. I cannot, at this moment, find any; and, as I ask for information, I will put a case in solution by this theory. A blast engine which, with cold-blast, is able to support a column of 2 in. of mercury, will, if the air be heated, support a column of 3 inches. This seems to imply that, though the air is *expanded* by heat, its *compressibility* is increased, which is equivalent to diminishing its power of overcoming resistance. It is natural this should be so, because, when heated to double its volume, half its density, or the matter of the air, is removed. That the ratio of increased power is only one-third, when the volume is doubled, arises probably from part of the air only being hot and part cold, so that, if the air were pumped heated into the cylinder, we may suppose a full ratio would be obtained. Do not these results contradict Mr. Baggs's supposition? If he is correct, must it not follow that the heated air at the blast-pipe should issue with a force of 15 + 4 *(at least)* = 19 lbs. per square inch. And the air having acquired this enormous force, would not the engine, instead of being relieved by the heated air, be brought to a dead stand? DAVID MUSHET.

November 6.

IMPROVED AIR-ENGINE—BAGGS'S PATENT.

SIR,—Your Number of the *Mining Journal* (Oct. 27) contains two letters referring to my improved air-engine. The first is from Mr. David Mushet, who asks me some fair and very pertinent questions concerning the action of the engine under particular circumstances of temperature, &c. I shall have great pleasure in giving all the information in my power upon this subject, and I have only to request that Mr. Mushet will hold me excused from doing so until the appearance of your next Number.

My present business lies with your second correspondent, Mr. J. Weston. I have carefully analysed his letter, repeated his calculations, and tested the solidity of his general premises and conclusions, and I am now bound to say that a more unfair, illiberal, and one-sided piece of composition, I think I never read in the whole course of my life. If your readers will be so kind as to consider well the following statements, *and to investigate their accuracy*, I think they will say that I have formed no exaggerated estimate of the injustice of this epistle.

Mr. Weston opens the *argument* in the following manner:—"In generating steam, *let us adopt the quantities supplied by Mr. Baggs*" (the words are not in italics in the letter), "and ascertain their comparative values. —1. 8 lbs. of fuel evaporate a cubic foot of water, or generate 432 cubic feet of steam, at a pressure of 60 lbs. to the inch—the mechanical value of 1 ft. of which, if used expansively to its ultimate extent, or say until its volume had doubled four times, and its pressure reduced to a quarter of an atmosphere, and acting against a perfect vacuum, would be 144 × 60 = 8640 + 24,192 (viz.: four times 70 per cent. of the first quantity) = 32,832 lbs., lifted 1 foot high, which, multiplied by 432, is equal to 14,185,424 lbs., lifted 1 ft. high, by the combustion of 8 lbs. of fuel.—2. The total minimum expansive effect, by the combustion of 8 lbs. of fuel, if *all* the heat was absorbed by atmospheric air, according to Mr. Baggs's first estimate, is 4082·7 cubic feet at 15 lbs. per inch effective pressure—the mechanical value of a cubic foot of which, if used expansively to its ultimate extent, would be 144 × 15 + 864 (viz.: two-fifths the first quantity) = 3024 lbs., lifted 1 ft. high, which, multiplied by 4082·7 (I like the decimal at the end of this multiplier; it looks *so very fair*, as if the author had determined to pay my principle its just due *to the last fraction*) is equal to 12,346,084 lbs., lifted 1 ft. high—being 1,782,340 lbs., or full one-eighth less than by steam; and when we consider that half the power is spent in pumping in the air, it will be found the advantage is 8 to 3·5 in favour of steam; but this calculation, be it remembered, is made on the assumption, that in the case of the air, *all* the heat is made available; whereas it can easily be shown that, by the plan proposed, at least one-half of it will be wasted; *nor would the arrangement, explained in your last Number, obviate that waste.*" This is put in italics; and, like the assertion which immediately precedes it, is unattended by any *demonstration*. I trust the reader will not suppose, however, that the demonstration was omitted because it could not be given. The author expressly says, Mr. Editor, that the proof is not afforded us because he is afraid of occupying too much of your valuable space—a very proper consideration. By means of the data which I have just quoted, Mr. Weston *proves* that the advantage of economy is 4 to 1 in favour of steam, even by the present arrangements; and he then terminates by saying that this "*may easily be doubled.*"

I will now proceed to examine the author's estimate with regard to steam—*absolutely* in the first place, *comparitively* in the second. We are told that steam is *expanded*. To what extent? "*Doubled four times in volume.*" This is a very ambiguous expression! Does it mean increased four times in volume simply, or does it mean twice four times, or the the square of four times? Lest I should mistake the true sense of the author, I will give the phrase its utmost latitude of signification, and see how far each separate meaning corresponds with *the computed duty*. We shall thus ascertain to a certainty the real intent of this passage, and then we can easily see if it is reconcilable with the results of practice.

The total mechanical effect of a cubic foot of steam, acting with an initial pressure of 60 lbs. to the inch, and afterwards expanded to four times its original volume, is (144 × 60 × 1 + 1·386) = 20,615 lbs., raised 1 ft. high. If the same steam, instead of being quadrupled in volume, is allowed to expand to *eight times*, its original bulk, the total effect is (144 × 60 × 1 + 2·079) = 26,602 lbs., raised 1 ft. high. It is quite clear that neither of these results agrees with that of your correspondent; we must, therefore, go a little farther. We will suppose the steam expanded 16 *times*, and then we have for effect (144 × 60 × 1 + 2·772) = 32,590 lbs., raised 1 ft. Your correspondent's estimate is 32,832 lbs. If he means, therefore, that the steam is expanded 16 times his figures are wrong, and if he does not mean this he means nothing, for this is the closest approximation derivable from any possible meaning of which the phrase "doubled four times in volume" is susceptible.

Now, observe! The last-named weight, multiplied by 432, indicates the number of pounds which may be raised 1 ft. high, by the expenditure of 8 lbs. of coal, and it is given by your correspondent as a *general*, not a particular, expression for the value of steam-power. Is such an assumption at all borne out in actual practice? Most assuredly not! for it immediately infers, by the rule of proportion, *a general steam duty*, procurable from a bushel of coals, weighing 94 lbs., of 130 millions of pounds, raised 1 ft. high. I say an actual *duty*, after making a liberal allowance of more than 36 millions of pounds for friction and loss. Practical men will easily understand the value of such an estimate. It is clearly based upon a very extravagant application of the principle of expansion. Now, it is only in Cornwall that this principle has received the full share of attention to which it is manifestly entitled, and here, certainly, every effort has been made to carry it to the greatest practical extent. With what success? Examine the various printed documents upon this subject. The monthly reports of Capt. Lean do not directly state the degree of "cut off," and consequent expansion in each engine, and we are saved the trouble of any calculation upon the subject, by referring to other sources of information. There is one, for instance, in Tredgold (Appendix G.), by Mr. J. S. Enys, and the expansion, in most instances, there recorded is only three times the original volume—in no one instance does it reach six times. Turning to other reports, we find that in the well-known Holmbush engine the steam was only expanded six times, and in the oft-quoted engine at the East London Water-Works four times only.

But your correspondent talks of steam expanded 16 times, and tells us of a resulting duty of 130 millions. I can only tell him that the *average duty of* 26 *Cornish engines*, for the month of September, was 53 *millions only*—and this, be it understood, is a special and not a general exhibition of steam economy. The truth is, the application of the expansive principle is confined within certain practical limits, beyond which it would be difficult to pass. The initial pressure upon the piston is so far beyond the average resistance, that the machinery is subjected to most injurious tension. For this reason a pressure of more than 40 lbs. to the inch is very rarely exceeded, even in Cornwall. Your correspondent talks of using 60 lbs. What would be the action of this upon an 85-inch cylinder? At the beginning of every stroke the machinery would be suddenly subjected to a strain of upwards of 150 tons. What possible machinery, unless it be of the most ponderous character, could stand such work as this? But the estimate is *general*. How will he apply it to steam vessels? Has he made arrangements here for the enormous inequalities between power and resistance implied by an expansion of 1 volume into 16? Has he overcome the general prejudice existing in Europe against the employment of high-pressure steam for purposes of navigation? He must do all this, and much more, before his estimate can be regarded in any other than a very hypothetical light. Singularly enough, however, he seems to regard such achievements as comparative trifles; for, after showing the economy producible from an expansion of 16, he informs us that this "*may easily be doubled.*" I beg to tell Mr. Weston, that to double such an effect as he has already described and attributed to steam, would require the original volume to be expanded 695 TIMES! and if he requires a demonstration of this fact, I shall be happy to afford it. But what I complain of is the very unfair way in which he has treated my calculations. In my first letter upon the subject of the "Improved air-engine," I gave four separate computations of the economical value of air, as compared with steam. Each of these was intended as a corrective over the others; and the last one was especially declared to be *the mathematical minimum of value*, beyond which it was impossible for contradiction to pass. Certain facts were afterwards elicited, which enabled me to correct this minimum, and to draw on fair grounds a general average of 1,468,893 feet of cubical expansion from the combustion of 1600 lbs. of coke.

Mr. Weston, after drawing such an exaggerated estimate of the mechanical power of steam, proceeds to calculate that of air. But in what way? He shuts his eyes to the general average of effect so fairly drawn (and which he knows it is out of power to set aside by fair reasoning), and going back to my first paper, he takes therefrom, as a true standard of comparison, the *uncorrected mathematical minimum* already referred to; and he does this, notwithstanding the correction and real average of effect were published a week or two before the writing of his letter, which is dated October 22. So much for fair argument. The object, however, is sufficiently plain, as the author is kind enough to inform us that *he* has certain means of producing mechanical power by the combustion of a given amount of fuel, which, in *his humble* opinion, are *infinitely superior* to my patented arrangement. ISHAM BAGGS.

P.S.—Mr. Weston says that the plan, or invention, of pumping back compressed air from the propelling tube of an atmospheric railway, attributed to Mr. Piatti, was explained by himself in your Number for July 22, 1846; and he asks if that date is antecedent to Mr. Piatti's patent? In reply, I beg to say that Mr. Piatti's patent was sealed more than a year before this date—viz.: on the 15th of June, 1845. The really laughable part of the present discussion is that, in his *last* letter, Mr. Weston is singing the praises of steam with most determined vehemence; whereas in the letter to which he refers in his appended postscript, he seems to entertain quite a contrary opinion. He is there advocating a system for producing power by compressed air; and he distinctly tells us that *one great advantage of his system, when fully developed, will be to do away with steam-engines altogether*; "for it must not be forgotten (says the author) that many horrible accidents have been caused through the use of steam-engines."—[See *Mining Journal*, July 25, 1846, "On the Superiority of Compressed Air as a Motive Power."]

ON PYROGEN.—No. XVIII.

On causing an uninsulated copper plate to rotate, so that the magnetic curves of the earth pass through the plane of it at an angle, currents of pyrogen are developed in it; thus when it is made to rotate in a horizontal plane, the magnetic curves of the earth pass through it at an angle of about 70°. On connecting one of the wires of the galvanometer with the axis of the plate, and forming metallic connection between the other and the edge of the plate, and rotating the plate, an electrical current is developed, which is indicated by the galvanometer. By the application of the law assumed in the last of these papers, to exist, the cause of these currents would seem to be arrived at; for when the copper disc is revolving in the same plane as that of the direction of the terrestrial force—that is, of the result of the combined action of all the electrical currents of the earth at a given spot, which direction is indicated by the dipping needle—the particles of pyrogen on the plate, or copper disc, do not form an angle with those on the earth, and no current is to be detected amongst them; but when the plate revolves in a different plane, the particles are disturbed in their positions as the plate revolves, and a current is produced. The direction of this current is regulated by that in which the disc rotates. When the plate revolves *screw fashion*, or as the hands of a watch, the current of pyrogen is from the centre to the circumference; and when the direction of rotation is un-screw, the current is from the circumference to the centre. It is probable that the reason of this difference is this: when the disc moves in one direction, the one kind of pole of the particles of pyrogen advances, as it were, against the terrestrial force; and when the copper plate rotates in the opposite direction, the other kind of pole advances—the direction given to the current being dependent on the nature of the advancing poles.

Messrs. Barlow and Faraday found that, by rotating metal spheres, electric currents are developed on their surfaces, provided the axes of rotation are not parallel with the dip; and the latter gentleman found also that these currents produce the same effects on the galvanometer as when rotating or moving metal wires are employed for the development of the currents instead of the surfaces of spheres. "If the upper part of the revolving ball (he says) be considered as a wire, moving from east to west, over the unmarked pole of the earth, the current of electricity in it should be from north to south; if the under part be considered as a similar wire, moving from west to east over the same pole, the electric current should be from south to north in a metal ball, revolving from east above to west in these latitudes. Now these currents were exactly those required to give the direction of the needle in the experiments just described; so that the coincidence of the theory, with the experiments themselves, is perfect."

The reader will see at once, in these and the other experiments detailed by Prof. Faraday in the lectures referred to, the simple cause to which these currents may be attributed—namely: the disturbance of the polarity of the particles of pyrogen in the discs, spheres, and wires during their motion; and although he may not agree with many of the hypotheses advanced in these papers, yet they are at least as reasonable and probable as many that are now received on the same points. The only object in view in bringing them forward, is to show that the leading truth I have discovered—namely, the materiality of the electric fluid, pyrogen—is not opposed to the other known facts of electrical science. J. J. LAKE.

Ordnance Office, Portsmouth, Nov. 1.

THE ELECTRO-CHRONOGRAPH.—A most beautiful appendage to astronomical and telegraphic clocks has been lately brought into operation by the American Coast Survey Commission. It was the invention of Dr. John Locke, of Cincinnati, who, from the conception of the first idea in 1844, was engaged in its perfection up to 1848, and it has been since in continuous use. It is a small instrument, which can be attached to the same pivot along with the seconds hand of a clock, and being put in connection with the telegraphic circuit, makes any clock at any distance along a line beat with it, without in the slightest degree affecting the most delicate clock to which it may be attached. Further, the hours and minutes may be registered on a fillet of paper, and by striking on the telegraphic key at the instant of any occurrence, the date of it is recorded to the hundredth of a second of time. This invention must eventually prove highly useful for many practical purposes. It makes the current of time visible to the eye in a permanent record. It does not change the rate of going of the most delicate clock. It will, doubtless, become applicable to many purposes for the advancement of science, to astronomical calculations, the determination of geographical longitude in connection with transit instruments, measurement of the velocity of sound, or perhaps the speed of the lightning itself, for it may be made to register far smaller subdivisions of time than hundredths of a second. For a fillet of paper a revolving cylinder may be used, with the hours, minutes, and second straced on it in a spiral line, with such precision, that a second of time may be divided into 10,000 parts, all susceptible of measurement by the microscope. Such a portion of time is supposed to be occupied by lightning in travelling 18 miles. With respect to its delicately true, yet facile capabilities of taking the longitude of different places on land (an immense advantage on extensive continents), Lieut. Maury, in an official letter to the Secretary of the Navy, describes its extraordinary accuracy. They are such, that the astronomer in New Orleans, St. Louis, Boston, or any other place to which the magnetic-telegraph reaches, may make an observation, and at the same instant cause the clock in Washington to record it with wonderful precision. Suppose the astronomer in Boston observes the transit of a star as it flits through the field of his instrument, and crosses the meridian of the place, instead of looking at a clock before him, and noting the time in the usual way, he touches a key, and the clock marks the time to the fraction of a second. The astronomer in Washington waits for the same star to cross his meridian, and as it does the break key is touched, also marking the exact time. The difference between these two periods of time is the longitude of Boston from the meridian of Washington. Astronomers in every part of the continent to which the wires extend, may wait for the same star, and as it comes to the meridian, the chronograph instantly registers the longitude.

SLATE PENCILS.—Mr. Cohen, of New York, has patented an improvement in the composition of slate pencils, which consists "in the mixing or combining, in certain proportions, the materials of alumina (in any of its forms) with French chalk, or with soap stone, in combination with water, for making of a clay or mass for making white slate pencils, and process of making the same."

KAMPTULICON—BANKRUPTCY COURT.—The floors of this court, which were covered with the patent kamptulicon about five years since, in order to deaden the sound, are undergoing partial repair. The wear of this extraordinary mechanical production appears to have given great satisfaction.

GALVANIC ELECTRICITY AND ANIMAL LIFE.

Mr. Smee's researches into the nature of galvanic electricity and animal structure, have led him to the conclusion that the former element has a most extraordinary relation to the vital functions of organic life. In the little volume before us, we are afforded a glimpse of some of his most delicate and beautiful experimental discoveries during his research, which go far to convince, on the most scientific grounds, that not only is there a relation between galvanism and organised life, but the living animal is formed of a series of innumerable voltaic batteries, by which all sense is developed, and every action of the muscular fibre regulated. In his aphorisms of the *Principles of the Human Mind*,* which are shortly descriptive of every sense, feeling, passion, thought, disease, insanity, &c., to the number of 68, the author observes, under the head "action"—"Man acts by electricity, which is set in motion through the muscular structures, whereby contraction ensues, and parts of the body are moved;" and it is supported throughout the whole of these definitions that organised life is dependent alone on the voltaic principle. In the practical lecture which concludes the pamphlet, some of his most delicate experiments are explained, by which he has approached so near to perfect demonstration, as to have constructed artificial galvanic nerves, representing the phenomena of feeling, seeing, smelling, memory, &c., by the greater or less deflection of the magnetic needle. These generally consist of gutta percha tubes, filled with acid and water, and having copper wires inserted, leading to the galvanometer; and the moment the wires are connected, deflection of the needle ensues. For representing the impression on the optic nerve by the sun's rays, Mr. Smee has discovered several mixtures forming batteries, which deflect the galvanometer on admitting the light; and the whole description is highly interesting, and bears powerful evidence of the deep research of the author, his anxiety that all his assumptions are founded on strictly scientific truths, and the perseverance which has marked his efforts in arriving at these interesting discoveries.

* Principles of the Human Mind: Deduced from Physical Laws—being a Sequel to Elements of Electro-Biology, together with a Lecture on the Voltaic Mechanism of Man, delivered at the London Institution, April 11th, 1849. By ALFRED SMEE, F.R.S., Senior Surgeon to the Royal General Dispensary, Surgeon to the Bank of England, to the Central London Opthalmic Institution, and Lecturer on Surgery. London: Longman and Co.

FRANKLIN COXWORTHY'S DISCOVERIES IN NATURAL PHILOSOPHY.—No. IX.

When treating of the principles of heat, we observed that, although in the doctrine of the diffusion of gases the scientific world might be assumed to be generally agreed, on that of heat the very highest authorities were completely at issue. If, then, such a difference of opinion amongst the sages of the day relieved us of the necessity for any apology to our readers for the introduction of more intelligible views, our embarrassment on the present occasion must be still more ideal, since, on the important question to which we are now about to advert, no opinion at all has ever been advanced. On the "diffusion of gases" our discoverer has the disadvantage of being at issue with the unanimous view of *all* the learned of every country. Fearful odds; although truth has, ere now, prevailed against greater numbers. On the doctrine of "heat" our still unaided champion found divided opponents, agreeing only in being antagonistic to him. But in what consists the principle of the "attraction of cohesion" of matter, no opinion has been expressed, until Franklin Coxworthy ventured upon the exposition of his own. Ask information on the subject of one of our *savans*, and the probability is that he will thus illustratively express it:—"If two pieces of wood, or other soft material, be subjected to a sufficient pressure, they will be held together by 'attraction of cohesion.'" This, *ad vulgam*, means that they will stick together. But what constitutes the adhesive or sticking principle we shall not be informed, unless we consult our preferred authority. And this remark applies equally to the "attraction of gravitation," notwithstanding the primary discovery of the effect, and the mathematical definition of the law, given to a grateful world by the illustrious Newton. Wide was his field of research, wonderful the results of his labours; yet his discoveries stopped short of developing the cause of the moving principle of gravitation. Let us continue our process of examination in juxta position, however ultra posited the propositions:—

OLD DOCTRINE.	NEW DOCTRINE.
That matter is held together by "attraction of cohesion."	That electricity is the bond of union in matter; is absorbed during its formation; and is evolved during disintegration or decrystallization,
That matter is drawn towards the centre of gravitation by "attraction of gravitation."	That gravitation is referable to electrical condition; and that matter, therefore, by compression or contraction actually *increases in weight*, with increase of specific gravity.

Reflecting on the phenomena connected with meteorology, and particularly on the formation and decrystallization of snow—on crystallization—and on electrical condition with reference to heat, the first of these two propositions naturally assumed the position assigned to it.

The paper on which we write this article affords us an illustration. If either of our readers has access to undisturbed hot-pressed and glazed paper, and will try a very easy experiment, in the dark, with a ream of it, he will find that, on rapidly separating the sheets from each other, from corner to centre, a spark or flash of electric fluid will instantly follow the act of separation. At the same time he will become aware, from the resistance offered by the sheets of paper to such a severance, that they were held together by an adhesive force. And thus have demonstrated the fact of the cohesive power of electricity. The sheets in close contact, the presence of electricity was imperceptible; contact broken—continuity destroyed—and the fluid explodes. Perhaps the most beautiful illustration of the principle that electricity is the bond of matter, is found in the use to be made of perfectly dry lumps of loaf sugar, and of a glass bottle equally exempt from moisture and unquestionably clean. Loaf sugar is highly crystallized, and its particles are, consequently, held together by a large, proportionate, amount of electricity. Half fill the bottle with such sugar, in lumps of the common size for domestic use; and, shaking it well, in a dark room, the whole of the interior of the bottle will become luminous with the electrical sparks evolved during the disintegration—the breaking into smaller pieces—of the sugar. Indeed, the same effect may be produced, of course in a less satisfactory manner, by turning such dry sugar, with a rapid continuous motion (as distinguished from a jerk), from one vessel into another.

On the hypothesis, then, that electricity is the bond of union in matter, and that it is identified with *cold* (as we have previously averred), we can have no difficulty in explaining a vast many phenomena connected with *heat*, that have hitherto puzzled the philosopher and bewildered the student. We have an apt and readily understood illustration in the passage of ice, under the influence of heat, to the æriform state.

All matter has a tendency to return to its naturally electrical state. The gases, therefore, generated by combustion, being in a highly negative or heated state, will readily abstract from ice, if it be subjected to their influence, its electricity of crystallization; and, until the whole of it be decrystallized, the liquifying contents of the vessel used in the experiment will not rise in temperature. When, however, all the electricity of crystallization has been abstracted, the water, by a further loss of electricity, will begin to rise in temperature and to increase in volume. Freed of its electricity it has room for heat, it remains cold no longer; and this heat, or negative state, if applied to it, may go on increasingly until what was ice will become steam. And then the steam rushing upward acquires, in turn, a new dose of electricity (or *cold*) from the air, and is converted into water again—if the dose be strong enough, into ice. Can anything be clearer?

In our next we shall endeavour to apply this simple illustration to the old doctrine of the expansion of matter during the absorption of heat, and its contraction whilst heat is evolved.—S: *Cheltenham Journal.*

ON THE CHEMISTRY OF FOOD.—A highly and interesting subject has been chosen by Mr. Ashley for his discourse during the past week, at the Royal Polytechnic Institution, it being on the "Chemistry of Food." The lecturer commenced by leading his hearers to comprehend the importance of respiration and the operations carried on during its action. Respiration was, he said, nothing more than combustion, and the whole source of animal heat. The constituents of food he classed under two heads—elements of respiration, or heat, affording constituents, and elements of nutrition, necessary to the formation of muscle, flesh, &c. The former consisted of fat gums, sugar, and many other compounds daily consumed as articles of diet; the latter comprised those substances of more complex natures, generally containing nitrogen, as fibrine casine, albumen, blood, &c. After briefly adverting to other points, the lecturer more particularly directed his attention to bread as an article of food, pointing out the nature of flour—the process going on during its preparation for the table, and concluded by enumerating and describing the modes of detecting its various impurities. Amongst them were chalk, gypsum, and other foreign matters common in bread, known as seconds and thirds, and which had, in some instances, been known to produce serious consequences. The lectures have been attended by large and respectable audiences.

New Patents.

[From the *Mechanics' Magazine* of this day.]

SPECIFICATIONS ENROLLED DURING THE PAST WEEK.

A. MUNKITTRICK, Manchester, merchant: For an improved composition of matters, which is applicable as a substitute for oil to the lubrication of machinery, and for other purposes. This improved lubricating composition consists of 4 lbs. of caoutchouc dissolved in some suitable solvent, 1 lb. of gine, 10 lbs. of carbonate of soda, 10 gallons of animal or vegetable oil, and 10 gallons of water. The water is boiled, and the glue and carbonate of soda dissolved therein, after which the caoutchouc and oil are added, and the whole well stirred together until it becomes homogeneous and as fluent as oil. It is then ready for use, and may be stored in casks and bottles until wanted. The patentee states that any substances possessing the same properties as the preceding, may be substituted for them, and that when the caoutchouc and oil are previously purified, the carbonate may be dispensed with; also, that the proportions may be varied according to the degree of consistency required.

Claim.—The combination of the ingredients before-named, or of any substances possessing the same properties, employed to form any analogous compound (whether in the proportion stated or varied to any practicable extent), which may be used as a substitute for oil to lubricate machinery, or for other purposes.

T. WHALEY, coal proprietor, Chorley, Lancaster; and R. LIGHTOLLER, cotton spinner of the same place: Certain improvements in machinery or apparatus for manufacturing bricks and tiles from clay and other plastic materials.—This invention consists principally in combining the pugging mill, pressing cylinder, screens, and mould plate in the machine in the following manner:—Underneath the pugging mill, which contains the knives as usual, is placed the pressing cylinder, in a horizontal position, and communicating with the mill. The cylinder is fitted with a piston, worked by a rack and pinion, and furnished with a sliding piece, which, as the piston moves to and fro, cuts off or establishes the communication. In front of the piston is a double moveable screen, with the bars arranged vertically, which is made to slide in and out of position by means of a rack and pinion. A second fixed screen, with the bars arranged horizontally, is placed after the first. An inclined shoot is fixed to the frame of the second screen, and is fitted at the opposite end with a mould plate, underneath which are a train of carriages, running on a railway, to receive and carry away the bricks or tiles as they are driven out of the moulds. The distance between each carriage is capable of being regulated by means of a common connecting rod. When the piston is drawn back, communication is established between the mill and cylinder, which is soon filled with clay from the former, through the action of the knives. As the piston advances, the sliding piece closes the communication, while the clay is driven through the screens which retain the stones, &c., out of the moulds, in the shape of long bars, of the depth and breadth required, on to the train of carriages. The bars are then cut into the desired lengths, and the carriages made to convey the bricks to a distance; whence they are taken to be dried. When one-half of the moveable screen becomes clogged, the other half is made to take its place, while it is cleansed by hand.

Claims.—1. The combination of the plug mill, pressing cylinder, screens, and die plate in one machine, for the manufacture of bricks and tiles.—2. The use of the double moveable screen.—3. The employment of the fixed screen.—4. The construction of carriages for receiving the bricks and tiles as they moulded, and conveying them away.

J. G. WILSON, engineer, Millman's-row, Chelsea: Certain improvements in the manufacture of glass, and in machinery and apparatus connected therewith.—1. The melting furnace is proposed to be constructed with a ring resting on anti-friction rollers, which is made to revolve as occasion may require by means of toothed gearing. Motion is communicated from the outside by a winch-handle. The pots, which are constructed with corrugated or angular surfaces to retain the heat, are placed on the ring, which is fluted at top to allow free passage to the heat. The top of the dome is constructed with a deflecting surface, in the shape of two parabolas joined together at the sides, whereby the heat which escapes from the side of the pots is reverberated on to the surface of the metal. The door or mouth of the furnace is closed by a mouth-piece, having two recesses on the opposite sides, and supported on a spindle, whereby it is made to revolve by any ordinary means. When it is desired to introduce a pot into the furnace, it is placed in the exterior recess of the mouth-piece, which is made to rotate until it is brought inside. The pot is then pushed, by means of tools passing through holes in the mouth-piece, on to the ring, which, by its revolution, carries the pot further into the furnace. The arrangements for withdrawing the pots are necessarily the converse of the preceding. —2. The furnace is to be fed from a hopper through an inclined shoot, in which an Archimedean screw works.—3. The casting table is constructed of cored bars of iron, which are bolted together and heated by the introduction of steam previous to the metal being poured in, for the purpose of preventing the too sudden expansion of the table. It is proposed to place a similarly cored slab of iron, constructed in sections, above the casting table, and resting on ledges on the inner of the sides thereof. Some suitable elastic material is laid on the joints, which, as the air is exhausted from the space between the two tables, is forced in by atmospheric pressure, and closes them hermetically. The mouth of the top table is closed by one-half of a cylinder, which fits into it exactly—the other half being cut away, so as to allow the metal to flow in when brought into position by a partial revolution. The table is also provided with a species of safety-valve apparatus for allowing the vapour from the metal to escape.—4. The grinding and polishing table is perforated, and communicates with an exhausting apparatus. Strips of gutta percha or vulcanised India-rubber are arranged upon its top surface, on which the plate of glass is laid. The air is then exhausted from the under side, and the plate secured by atmospheric pressure, without being liable to fracture, during the grinding and polishing process. Or, the top of the table is to be covered with some suitable material, such as gutta percha, which is rendered plastic by the application of heat, and on which the plate is laid, and imbedded by its cooling. When the plate is finished and to be removed, the gutta percha is rendered plastic, as before.—5. Instead of using a "ponty-rod" in the manufacture of glass, as hitherto, it is now proposed to employ a rod with elastic arms, which embrace the globe, and expand with it when the "flashing" takes place.

Claims.—1. The improvements in the construction and arrangement of melting-furnaces, and in the form of the pots, whereby their removal from and placing in the former is facilitated, and a greater and more uniform degree of heat is obtained.—2. The self-acting apparatus for feeding the furnace.—3. The construction of casting tables in sections; also the mode of constructing them for the purpose of casting slabs of glass *in vacuo*.—4. The mode of arranging tables whereby plates of glass are retained in position by atmospheric pressure, or imbedded in some plastic material during the grinding and polishing operations.—5. The mode of making crown glass.

LIST OF PATENTS GRANTED DURING THE PAST WEEK.

G. P. Macindoe, Mountblow, Scotland, for certain improvements in machinery or apparatus applicable to the preparation, spinning, doubling, and twisting of cotton, wool, silk, flax, and other fibrous substances.

A. Cottom, of the firm of J. Elce and Co, of Manchester, machine makers, for improvements in machinery to be used in preparing and spinning cotton, and other fibrous substances. (Being a communication.)

J. Jordan, Liverpool, engineer, for certain improvements in the construction of ships and other vessels navigating on water.

Lucien Vidie, formerly of Paris, France, but now of South-street, Finsbury, French advocate, for certain improvements in conveyances on land and water.

F. O. Palmer, Great Sutton-street, Middlesex, gentleman, for certain improvements in the manufacture of candles, and also in the machinery for the manufacture of such matters.

C. Cowper, Southampton-buildings, Chancery-lane, for improvements in the treatment of coal, and in separating coal and other substances from foreign matters, and in the manufacture of artificial fuel and coke, and in the distillation and treatment of tar and other products from coal; together with improvements in the machinery and apparatus employed for the said purposes. (Being a communication.)

M. J. Haines, Lucas-street, Commercial-road East, Middlesex, leather-pipe maker, for improvements in the manufacture of bands for driving machinery in hose, or pipes, and buffers for railway purposes.

H. Tucker, Roxbury, Massachusetts, United States of America, for a certain new or improved manufacture of mantle-pieces.

W. Buckwell, of the Artificial Granite Works, Battersea, Surrey, civil engineer, and J. Apsey, of Blackfriars, in the same county, engineer, for improvements in steam-engines, and in propelling vessels.

W. Morris, of Cold Bath-square, Middlesex, civil engineer, for improvements in the preparing of clay, and in the manufacture of bricks, tiles, and other articles made of clay or brick earth.

J. Combe, of Belfast, Ireland, engineer and machinist, for improvements in machinery for hackling flax and hemp, and in machinery for producing flax yarns.

A. Barlow, Friday-street, London, warehouseman, for improvements in weaving.

W. E. Newton, of Chancery-lane, civil engineer, for improvements in machinery for dressing, shaping, cutting, and drilling or boring rocks or stone; part of which improvements are, with certain modifications, applicable to machinery or apparatus for driving piles. (Being a communication.)

J. B. Wilson, St. Helens, Lancaster, rope-maker, for improvements in wire ropes.

C. E. Amos, of the Grove, Southwark, Surrey, engineer, and M. Clarke, of St. Mary Cray, Kent, engineer, for improvements in the manufacture of paper, and in the apparatus and machinery used therein, part of which apparatus or machinery is applicable for regulating the pressure of fluids for various purposes.

C. M. Barker, Lower Kennington-lane, Surrey, engineer, for improvements in sawing or cutting wood and metals.

R. F. Sturges, and J. Harlow, both of Birmingham, for improvements in bedsteads.

E. Chambers, of Birmingham, smith, for improvements in the manufacture of wheels.

T. Keely, of Nottingham, manufacturer, and W. Wilkinson, of the same place, framework knitter, for certain improvements in looped or elastic fabrics, and in articles made therefrom; also certain machinery for producing the said improvements, which is applicable in whole or in part to the manufacture of looped fabrics generally.

S. B. Oliver, of Woodford, Essex, gentleman, for certain improvements in dyeing and dyeing materials. (Being a communication.)

H. H. Henson, Hampstead, Middlesex, gentlemen, for certain improvements in railways, and in railway carriages.

R. Brotherhood, Chippenham, Wilts, railway contractor, for an apparatus or mode for covering trucks and waggons on railways, road waggons, and canal boats, so as effectually to protect goods in the course of public transit from theft or damage, and at the same time to allow of such trucks and waggons being loaded and unloaded with equal facility.

J. Cowley, of Walsall, Stafford, manufacturer, and J. Hickman, of Aston, Warwick, clerk, for improvements in the manufacture of bedsteads, chairs, tables, couches, and tabular or hollow articles.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

B. Richard, Dudley Port Foundry, Tipton, metallic moulds for casting weights and cable chain, studs, and stays.

Weiss and Son, Strand, London, invalids' reclining bed couch.

W. Rye, Oldham, a "taking-up" roller for power looms.

T. Toxer, Dean-street, Soho, the Calorifere.—*Mechanics' Magazine.*

OPENING OF THE SHREWSBURY AND BIRMINGHAM RAILWAY.—On Thursday Capt. Wynne, the government inspector, went over the remainder of this line, and intimated approval for its opening, which, in accordance with the certificate of the railway commissioners, will take place on Monday next with excursion trains. On Tuesday it will be regularly opened for public traffic, running six trains each way between Shrewsbury and Wolverhampton. Mr. Stephenson has also inspected the tunnel at Oakengates, about the security of which some doubts were entertained, and reports that it is perfectly safe.

JUCKE'S PATENT SMOKE-CONSUMING FURNACE.—The above is in SUCCESSFUL OPERATION at the under-mentioned places—viz.: Three at Her Majesty's Mint; three at the Artesian Wells, Trafalgar-square; one at the Tower; two at the Thames Tunnel; 10 at Price's Candle Company; five at Messrs. Craven and Lucas's, sugar refiners, and at the following breweries:—10 at Messrs. Truman, Hanbury, and Co.'s; six at Messrs. Elliott and Co.'s; one at Messrs. Barclay, Perkins, and Co.'s; one at Messrs. Combe, Delafield, and Co.'s; and one at Messrs. Thorne and Son's. Upwards of 40 are in use at different steam-mills. It is also in operation in a reverberatory furnace at the Mint, and is particularly adapted for smelting or heating metals or other materials. The entire consumption of smoke, great economy of fuel, and the certainty of a steady fire, which can be regulated at pleasure, and made of the refuse or screenings of coals, render this patent invaluable for all manufacturing purposes. It is admirably adapted for steam-boats and locomotive engines, where coke or anthracite coal is now used. 43

The proprietors are willing to SELL the PATENT RIGHT, for any city, town, district, or country, or to any steam-boat or railway company; also for Scotland, Ireland, the colonies, or Holland. The French patent right is sold, and working well in France, and on board the French frigate, *Promethens*.

For terms to manufacture the patent apply to Messrs. Quilter, Ball, Jay, and Crossby, 57, Coleman-street, London. Furnaces can be supplied by the following engineers, who are already licensed to manufacture the patent:—Surmon and Co., Canal-bridge, New North-road, Hoxton; Joseph Beaumont, Leman-street, Whitechapel; Easton and Amos, Grove, Guildford-street, Southwark; John Wood, and Co., Sowerby-bridge, Halifax; and John Gray, and Co., Rhodes Iron-Works, Chester.

STRUVE'S PATENT MINE VENTILATOR.
COST—£150.
TO COLLIERY PROPRIETORS. 43

Quantity of air passed through a Mine almost unlimited, to the extent of 200,000 cubic feet per minute, if necessary—depending on size of apparatus.

COST of an APPARATUS to produce a ventilation of 20,000 cubic feet per minute, ONE HUNDRED and FIFTY POUNDS, exclusive of patent right. This amount of ventilation would be sufficient for a mine working 150 tons per day, provided it was not very fiery; in which case it would be desirable to provide for 30,000 cubic feet of air per minute. The capabilities of the Ventilator may be doubled at any future time, at a comparatively small cost.

The Ventilator has been at work for upwards of six months at the Eaglesbush Colliery, near Neath, working under a rarefaction of 2½ to 3 inches of water, which demonstrates the impracticability of furnace ventilation, when the shafts are shallow and the airways small.—It is practical to rarify a mine by this ventilator to the extent of 2 feet of water, or 2 inches of mercury.

LICENSES will be GRANTED on application to
Mr. WILLIAM PRICE STRUVE, Swansea,
CIVIL ENGINEER AND MINERAL SURVEYOR.

INDURATED AND IMPERVIOUS STONE, CHALK, &c.—AGENTS, with capital, are WANTED in all TOWNS to SUPPLY (under British and Foreign Patents) the great demand for HUTCHISONISED MATERIALS—hard as granite, impervious to moisture, vermin, &c.; the cheapest and most durable for all buildings, hydraulic, paving, monumental and decorative work.—The profits are large.
Apply to HUTCHISON & CO., 44
140, Strand, London; or Tunbridge Wells, Kent, and Caen, Normandy, stating name, address, and capital at command.
N.B.—Houses cured of damp. The produce of soft stone quarries, chalk, plaster of Paris, wood, pasteboard, and all absorbent materials indurated to resist frost, vermin, &c.
LICENCES GRANTED.

TO THE OWNERS OF COLLIERIES, MINES, PLANTATIONS, SAW-MILLS, &c.
IMPROVED CIRCULAR SAWS, MILL-SAWS, FILES, 45
Machine Irons, and Cutting Knives, Steel in Blister, Bar, Cast, Shear, and Drift Steel, Springs for Railways and Common Roads, Iron Washers, Bolts, Hammers, &c., on the most PERFECT and ECONOMICAL PRINCIPLES, MANUFACTURED with DISPATCH, by
BLAKE AND PARKIN,
THE MEADOW STEEL-WORKS, SHEFFIELD.

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES AND CLOCKS.
E. J. DENT, 82, Strand; 33, Cockspur-street; 34, Royal Exchange (clock tower area), Watch and Clock Maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.
DENT'S PATENT DIPLIEDOSCOPE, 46
or Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY	Royal Botanic—Inner Circle, Regent's Park	3½ P.M.
	Westminster Medical—17, Saville-row	8 P.M.
MONDAY	Geographical—3, Waterloo-place	8½ P.M.
TUESDAY	Medical and Chirurgical—53, Berners-street	8½ P.M.
	Civil Engineers—25, Great George-street	8 P.M.
	Zoological—11, Hanover-square	9 P.M.
	Syro-Egyptian—71, Mortimer-street, Cavendish-square	7½ P.M.
WEDNESDAY	Society of Arts—Adelphi	8 P.M.
	Microscopical—21, Regent-street	7 P.M.
	Pharmaceutical—17, Bloomsbury-square	9 P.M.
	Ethnological—17, Saville-row	8 P.M.
	Literary Fund—73, Great Russell-street	3 P.M.
THURSDAY	Royal—Somerset-house	8½ P.M.
	Antiquaries—Somerset-house	8 P.M.
SATURDAY	Asiatic—5, New Burlington-street	2 P.M.

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

MONDAY	Architects', Civil Engineers', Builders', and General Fire and Life Assurance Company—offices, at One.
TUESDAY	Imperial Brazilian Mining Association—London Tavern, at Two. Equitable Gas-Light Company—offices, at One.
WEDNESDAY	Imperial Continental Gas Assurance—offices, at Two. North Wales Railway—Paddington Station, at Two.
THURSDAY	Medical, Legal, and General Mutual Life Assurance Co.—offices, Twelve. Etonion & General Life Assurance & Endowment Society—offices, Twelve.

GRAND UNION CANAL.—The half-yearly meeting of proprietors was held at the offices of the company on Monday last, the 5th inst., when, from the report, it appeared that there had been a decrease in the tonnage on the canal for 12 months to the end of September last, as compared with the previous year, of 1079*l.* 3s. 8d.; while the proportion of such decrease for the six months ending the same time was only 28*l.* 2s. 7d. From the statement of accounts there appeared—Balance at last account, 6730*l.* 0s. 2d.; tonnage received in the half-year, 2878*l.* 16s. 11d.: rents, 62*l.* 2s. 6d.; miscellaneous, 115.. 19s. 2d. = 9786*l.* 18s. 9d.—By costs of repairs, wages, &c., 862*l.* 7s. 11d.; rents, taxes, &c., 148*l.* 3s. 4d.; miscellaneous, 65*l.* 18s. 11d.; repaid errors, 56*l.* 13s. 1d.; dividends paid, 2385*l.* 18s. 9d.: leaving in hand, 6267*l.* 16s. 9d.—The report congratulated the proprietors on the improvement in the coal traffic still continuing, although in general traffic there had been a falling off. The increase in the last half-year, as compared with the corresponding six months of 1848, was 4319 tons, and decrease in sundries 4881 tons. The committee reported that, in July last, all the canal-works, reservoirs, &c., were in good repair, with the exception of an old bridge, which would be rebuilt. The tonnages owing by traders who were allowed credit amounted to 583*l.* 1s. 11d., which was an additional asset to the above balance in hand. The report and accounts were then adopted. A dividend of 15s. per share was declared.

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Bate's West Hartley 15—Buddle's West Hartley 15 3—Carr's Hartley 15—East Wylam 15—Hastings Hartley 15 3—Holywell 16 6—North Percy Hartley 15—Ord's Redheugh 16—Ravensworth's West Hartley 14 6—Smith's Pontop 15 6—Tanfield Moor 14 9—Tanfield Moor Butes 14—Townley 16—West Hartley 15 9—Wylam 16—Wall's-End Acorn Close 17—Brown's 16—Bensham 16—Bewicke and Co. 17 3—Elm Park 16 6—Gibson 16—Harton 16 9—Hilda 16 3—Hotspur 16—Heaton 16 9—Hebburn 16 6—Killingworth 16 6—Northumberland 16—Original Gibson 16 3—Percy 16 3—Riddle 16 6—Walker 16 6—Eden Main 17 6—Lambton Primrose 17 6—Bell 17 3—Belmont 17 9—Braddyll 18—Hetton 18 6—Haswell 18 6—Heselden 16 6—Hetton and Lyons 17 9—Hutton 16 6—Lumley 16 9—Lambton 18—North Hetton Lyons 17 6—Russell's Hetton 18—Stewart's 18 6—Whitwell 16 9—Caradoc 17 3—Cassop 17 9—Heugh Hall 17—Hartlepool 18 6—Kelloe 18—South Hartlepool 17 3 to 17 6—Whitworth 15 3—Clavering Tees 15 6—Adelaide Tees 17 9—Cowndon Tees 16 6 to 16 9—Maclean's Tees 16—Tees 18 6—West Cornforth 16 6—Birchgrove Graigola 20 6—Cowpen Hartley 15—Howard's West Hartley Netherton 15 3—Nixon's Merthyr and Cardiff 21—Snapethorpe 15 6—Sidney's Hartley 15 3.—Ships at market, 352; sold, 157.

WEDNESDAY.—Buddle's West Hartley 15—Carr's Hartley 15—Hastings Hartley 15—Old Tanfield 13 9—Ord's Redheugh 16—Ravensworth West Hartley 15—Tanfield Moor 15—Townley 15 6—West Hartley 15 6—Wylam 15 9—Wall's End Brown's 16—Gibson 16 3—Hedley 16 9—Heaton 16 9—Millbank 16—Northumberland 16—Percy 16 3—Riddell 16 3—South Willington 16—Washington 16 3—Eden Main 17 3 to 17 6—Laumbt-Primrose 17 6—Bell 17 3—Belmont 17 3—Braddy's 18—Hetton 18 6—Haswell 18 9—Jonassohn's 16 3—Lumley 16 9—Lambton 18—North Hetton Lyons 17 6—Russel's Hetton 18—Stewart's 18 3 to 11 6—Whitwell 16 9—Howdon 16 9—Kelloe 18—South Kelloe 17—South Hartlepool 17 6—West Belmont 17 3—Whitworth 15 3—Cowden Tees 16 6—Macleans Tees 16—South Durham 16 2—St. Helen's Tees 16—Tees 18 6—Cowpen Hartley 15—Nixony's Merthyr and Cardiff 21—Sidney's Hartley 15.—Ships, 198; sold, 93.

FRIDAY.—Bate's West Hartley 14 9—Buddle's West Hartley 14 9—Carr's Hartley 14 9—Davison's West Hartley 15 3—Adair's Main 15—East Wylam 14—Hastling's Hartley 14 9—Holywell 16 6—North Percy Hartley 14 9—Old Tanfield 13 9—Ord's Redheu 15 6—Ravensworth's West Hartley 15—Stewart's Hartley 14—Tanfield Moor Bute's 14 6—Townley 15 6—Wylam 15 6—Eden Main 17 3 to 17 6—Lambton Primrose 17 6—Cowpen Hartley 14 9—Howard's West Hartley Netherton 15 3—Lewis's Merthyr 21 6—Llangennech 20—Nixon's Merthyr and Cardiff 21—Sidney's Hartley 14 9—Wall's-End Brown's 15 9—Gibsons's 16—Hilda 16 3—Heaton 16 6—Millbank 16—Original Gibson 16 9—Sefton 15 6—Bell 17—Belmont 17 6—Braddyll 18—Haswell 18 9—Hutton 16 9—Lumley 16 9—Lambton 18—Russell's Hetton 18—Stewart's 18 6—Whitwell 16 9—Hartlepool 18 6—South Hartlepool 17 6—Whitworth 15 3—Cowden Tees 16 6—South Durham 16 9—Tees 18 6.—Ships at market, 302; sold, 90.

STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.
THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY 4
BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 20th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MEDITERRANEAN.—MALTA—On the 20th and 29th of every month. CONSTANTINOPLE—On the 29th of the month. ALEXANDRIA—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th 17th, and 27th of the month.

For plans of the vessels, rates of passage-money, and to secure passages and ship cargo, apply at the company's offices, No. 122, Leadenhall-street, London; and 37, High-street, Southampton.

RAILWAY PASSENGERS' ASSURANCE COMPANY.
Empowered by Special Act of Parliament, 12 and 13 Victoria, cap. 40.
CAPITAL—ONE MILLION.
OFFICES—3, OLD BROAD-STREET, LONDON.
DIRECTORS.
CHAIRMAN—JOHN DEAN PAUL, Esq., 217, Strand.
DEPUTY-CHAIRMAN—GEORGE BERKELEY HARRISON, Esq., 24, Great Tower-street.
HUMPHREY BROWN, Esq., M.P., Westminster and Tewkesbury.
JAMES CLAY, Esq., M.P., 25, Montague-square. 40
GEORGE CLIVE, Esq., Sanderstead-court, Croydon.
SAMUEL WHITFIELD DAUKES, Esq., 14, Whitehall-place.
HARVIE MORTON FARQUHAR, Esq., 16, St. James's-street.
ALEXANDER GREIG, Esq., 10, Lowndes-street, Belgrave-square.
The Hon. ARTHUR KINNAIRD, Pall-mall East.
BANKERS.
Messrs. Strahan, Paul, Paul, & Bates, 217, Strand; Messrs. Ransom & Co., Pall-mall East.
SURGEON.
Barnard Wight Holt, Esq., F.R.C.S., 5, Parliament-street, Westminster.
SOLICITORS.
Messrs. Holt and Aubin, 26, Bucklersbury.

PASSENGERS can be INSURED for a SINGLE JOURNEY at the Booking Office where the Railway Ticket is obtained, against the consequences of a railway accident; affording compensation for PERSONAL INJURY sustained by the ticket holder, proportioned to the sum assured; and to the representatives of the ticket holder, in the event of loss of life, the sums of
£1000, if a first-class passenger, for 3d.
500, if a second-class " 2d. } Irrespective of distance.
200, if a third-class " 1d.

PERIODICAL TICKETS, which cover the Risk of Travelling on any Railway in the Kingdom, may be obtained at the Company's Offices 3, Old Broad-street, London; or of the Provincial Agents of the Company: and the Booking Clerks at all Railway Stations, where SINGLE JOURNEY TICKETS are issued, to INSURE ONE THOUSAND POUNDS upon the following terms:—
For three months, at a premium of 10s.
For six " " 16s. } With the option of travelling
For twelve " " 20s. } in any class carriage.
All the Premiums charged include the Stamp Duty, which will be payable to Government by the Company.
When paying the railway fare, the passenger can obtain an Insurance Ticket by applying to the Booking Clerk, at most of the Railway Stations.
ALEXANDER BEATTIE, Secretary.

AGENTS WANTED IN DEVON, CORNWALL, AND NORTH AND SOUTH WALES.

SCOTTISH AMICABLE MUTUAL LIFE ASSURANCE SOCIETY.—ESTABLISHED 1826.
LONDON OFFICES—No. 43, LOMBARD-STREET.
PRESIDENT.
THE MOST NOBLE THE MARQUIS OF DALHOUSIE. 49
VICE-PRESIDENTS.
HIS GRACE THE DUKE OF BUCCLEUCH.
JOHN CAMPBELL COLQUHOUN, Esq., OF KILLERMONT.

A Policy of £1000, opened with this Society in 1840, was, in 1846, by the addition of £2 per annum on every £100, increased to £1120. And, by the above principle of this Society, an addition of 2 per cent. per annum, upon the above accumulated sum of £1120, gives, as the value of the original policy of £1000,

In 1849, if it then becomes a claim				£1187 4 0
1850	"	"		1209 12 0
1851	"	"		1232 0 0
1852	"	"		1254 8 0

TABLE—*Illustrating Accumulation of Additions on £1000 Policy on Society's Plan:*—

Amount with Additions.	Sum of Premiums paid according to Ages at entry.			
At end of Years.	At 2 per cent. per ann.	20.	27.	34.	41.
6	£1120 0 0	£145 5 0	£167 8 4	£196 5 10..	£235 19 2
13	1276 16 0	290 10 0	334 16 8	392 11 8..	471 18 4
27	1659 6 7	581 0 0	669 13 4	785 3 4..	943 16 8
55	2802 10 10	1162 0 0	....	.... ..	....

New entrants admitted to every advantage.
Immediate, deferred, and survivorship annuities granted.
Every facility afforded to assurers.
THE WHOLE PROFITS DIVIDED AMONG THE ASSURED.
Manager—WILLIAM SPENS.
Resident Secretary in London—J. E. C. KOCH.

SEA, FIRE LIFE ASSURANCE OFFICE,
(ESTABLISHED BY ACT OF PARLIAMENT.)
31, *CORNHILL, LONDON.*
Capital £100,000, in shares of 20s. each, to be paid in full on allotment, bearing a guaranteed interest of 5 per cent. in perpetuity (irrespective of further dividends) upon the paid-up capital.
Application for shares to be addressed to the Directors, at the office of the Society.
Marine, fire, and life assurances granted on the most liberal terms.
Immediate and deferred annuities granted on terms especially advantageous for investment of capital. By order, AUG. COLLINGRIDGE, Managing Director.
SPECIMENS OF THE RATES OF PREMIUM FOR ASSURANCE OF £100.

Age.	*With Profits.*	*Age.*	*Without Profits.*
20	£1 19 3	20	£1 14 6
30	2 11 3	30	2 5 1
40	3 8 3	40	3 0 2

The whole of the Profits from the Life Department divided amongst the Policy holders. All Life Policies indisputable.—All Life Policies free of stamp duty.
ALFRED BURT, Actuary.
*** WANTED, AGENTS and MEDICAL REFEREES for the PRINCIPAL TOWNS in the KINGDOM.
COUNTY SURVEYORS ALSO REQUIRED.

SEWERAGE OF LONDON.—The ATTENTION of the COMMISSIONERS appointed to determine upon the MOST EFFICIENT MATERIAL for the CONSTRUCTION of the SEWERS OF LONDON, is particularly directed to the ASPHALTE OF SEYSSEL, which more than any other material is applicable to the CONSTRUCTING and INTERNAL COATING of BRICK CULVERTS and OTHER CHANNELS for DRAINAGE.
The experiments made by the Royal Artillery on the embrasures of Plymouth Citadel, constructed of Seyssel Asphalte Brickwork, under the orders of the Hon. Board of Ordnance, have fully proved the superiority, adhesiveness, and strength of Seyssel Asphalte over all other cementitious compositions. A printed account of these experiments can be had on application to I. FARRELL, Secretary,
Seyssel Asphalte Company—"Claridge's Patent"—Established 1838. 51
Note.—The application of the Asphalte of Seyssel is specially recommended by the Commissioners on the Fine Arts for covering the ground line of brickwork in marshy situations, and it has been suggested that it would be peculiarly applicable for covering the *areas* of closed *grave yards*, and for the construction of *catacombs*.

Under the PATRONAGE OF ROYALTY, and the AUTHORITY of the FACULTY.

KEATING'S COUGH LOZENGES.—Upwards of 40 years' experience has fully confirmed the superior reputation of these LOZENGES, in the cure of Asthma, Winter Cough, Hoarseness, Shortness of Breath, and other pulmonary maladies. They have deservedly obtained the high patronage of their Majesties the King of Prussia, and the King of Hanover; very many also of the Nobility and Clergy, and of the Public generally, use them, under the recommendation of some of the most eminent of the Faculty. They have immediate influence over the following cases:—Asthmatic and Consumptive Complaints, Coughs, Shortness of Breath, Hoarseness, &c.
Prepared and sold in boxes, 1s. 1½d., and tins, 2s. 9d., 4s. 6d., and 10s. 6d. each, by Thomas Keating, chemist, &c., No. 79, St. Paul's Churchyard, London, and retail by all druggists and patent medicine venders in the kingdom. 52
IMPORTANT TESTIMONIAL.
Copy of a Letter from Colonel Hawker (the well known Author of "Guns and Shooting.")
Longparish House, near Whitchurch, Hants, October 21, 1846.
SIR,—I cannot resist informing you of the extraordinary effect that I have experienced by taking only a few of your lozenges. I had a cough for several weeks, that defied all that had been prescribed for me, and yet I got completely rid of it by taking about half a small box of your lozenges, which I find are the only ones that relieve the cough without deranging the stomach or digestive organs.
I am, Sir, your humble servant, P. HAWKER.
To Mr. Keating, 79, St. Paul's Churchyard.

CHOLERA AND BOWEL COMPLAINTS.—Thousands have been saved by Dr. MACANN'S GRAND ELIXIR and TINCTURE. It was successfully prescribed by the late Dr. Macann, when the cholera raged at Bilston, in 1832, and has effected more cures in 1849 than all other medicines. One dose is generally sufficient to stop vomiting, purging, cramp, &c., and every family should have a supply in the house ready. The Grand Elixir is sold in bottles, 2s. 9d. and 11s. each, and the Tincture in bottles, 13½d. each, duty included.—Prepared only by THOMAS WHITE, chemist, Bilston, and sold by him, and by Barclay and Sons, 95, Farringdon-street; Drew, Heyward, and Barron, Bush-lane, Cannon-street; Hannay and Dietrichsen, 63, Oxford-street, London.—Wholesale and shipping agent, Mr. Wm. Bailey, Wolverhampton.—Beware of counterfeit preparations, and see that the Government stamp on each bottle has the signature of "T. WHITE," as none else is genuine. 53

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